PUBLIC HEALTH REPORTS

In this issue

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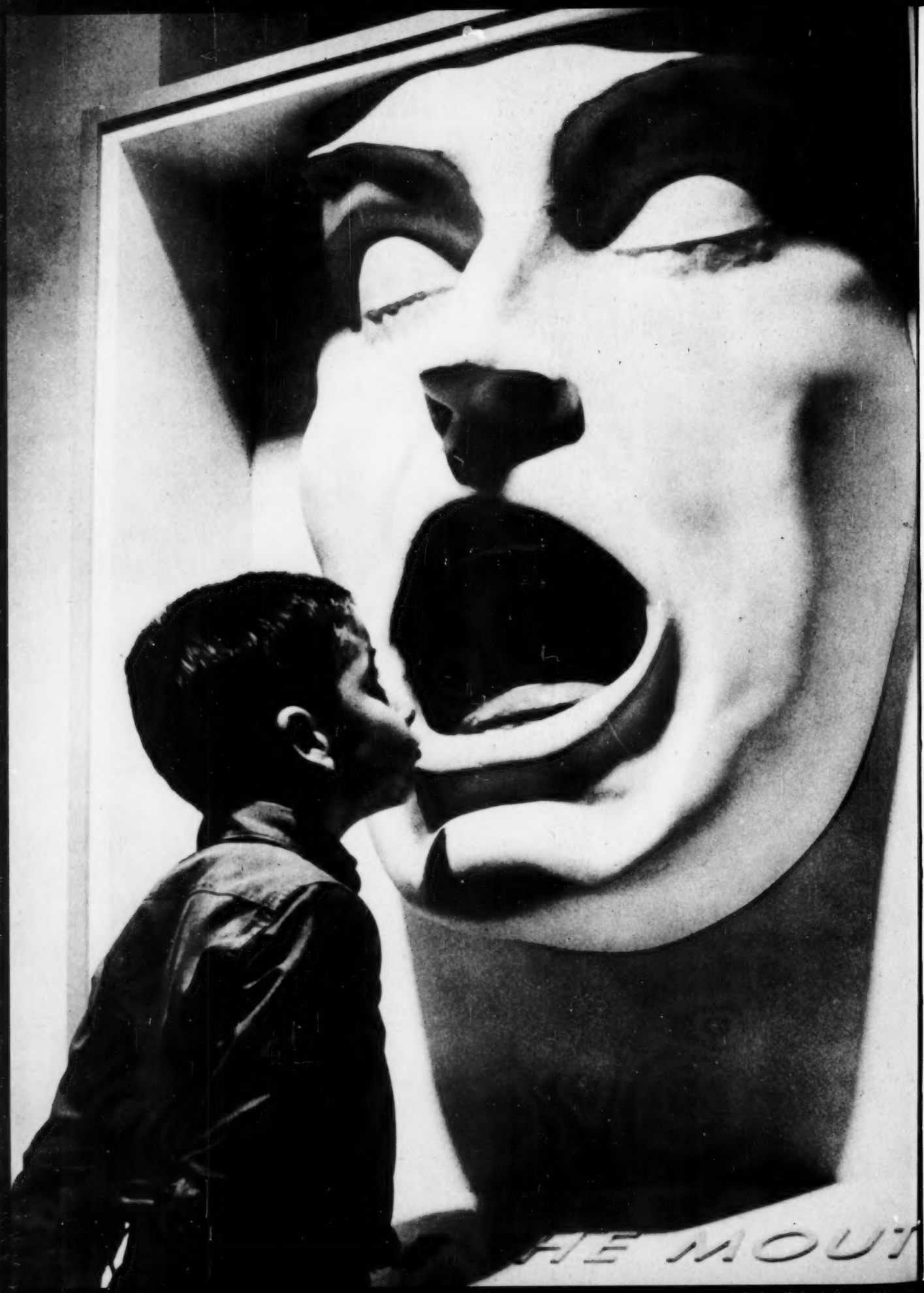
Public Health Service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frontispiece

Mouth exhibit at the Hinsdale Health Museum in Illinois. Other exhibits in the museum are portrayed on pages 261–263.

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PUBLIC HEALTH REPORTS

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U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
ARTHUR S. FLEMMING, *Secretary*

PUBLIC HEALTH SERVICE
LEROY E. BURNEY, *Surgeon General*

Profile of American Families, 1940–57

WILLIAM F. PRATT

DESPITE the dire warnings we frequently hear concerning the deterioration of the American family, family life is more popular today than at any other time since the turn of the century. But marked changes are occurring in the patterns of family life, many of which have proceeded more rapidly since World War II. Change almost invariably creates tension, especially when it involves the modification of deeply rooted traditions or expectations. Many current social ills have been causally attributed to contemporary family life. If this is so, a basic understanding of changes in family life is indispensable to understanding these social problems.

The number of families in the United States has increased. More than three-fourths of the decline in the proportion of the population "never married" since 1890 occurred between 1940 and 1957 (fig. 1). In this period the proportion of men currently married increased from 59.7 to 67.3 percent, and of women from 59.5 to 66.4 percent (*1a*, *2a*). The number of families increased 35.1 percent between 1940 and 1957 (*2b*). Four basic factors have contributed to this increase in families:

1. More couples survive to celebrate their golden wedding anniversary. Glick has estimated that median ages to which husbands and wives survive jointly increased 0.5 year between 1940 and 1950 (*1b*). The improvements in life expectation since 1950 have undoubtedly extended this gain in the duration of marriage.

2. The proportion of remarried persons has increased. Although this trend started before 1940, the proportion of remarried women among those 15–44 years of age, with husband present, increased 4 percent between 1940 and 1950 (from 9 percent to 13 percent), or more than in the preceding 30 years (*1c*). The increasing proportion of remarried persons can be ascribed principally to the remarriages of divorced persons. In the years 1950 to 1956, there were 3 to 4 widowed brides and grooms to every 10 divorced brides and grooms (*3a*).

3. The greatest factor in the increased proportions of currently married persons, quite obviously, is the decline in the proportion remaining single. The proportion single of the population 14 years of age and older declined more than 6 percent between 1940 and 1957, 34.8 to 28.1 percent for men and 27.6 to 21.6 for women (*1a*,*2a*). This decline was observed in each age group in 1955 compared with 1940 (*1d*). Between 1940 and 1955, the median age at first marriage dropped 1.6 years for men, or almost as much as in the preceding half century, while for women the median age dropped 1.3 years, or about twice as much as in the preceding half century (*1e*). Two social trends would seem to be particularly significant in the recent decline in the age of first marriage, especially in the oldest 25 percent. College enrollment of married students increased with the advent of the GI bill and the veteran-student. As recently as 1955, many colleges still reported increased enrollment of married students. The increased opportunities for, and acceptance of, married women in the labor force may well have paralleled the GI bill as a factor facilitating

Mr. Pratt is an analytical statistician in the Marriage and Divorce Analysis Section, National Office of Vital Statistics. *This report was prepared originally for the American Social Hygiene Association for use in connection with the Conference of Executives of National Organizations in New York City, October 20–21, 1958.*

earlier marriage since the war. These trends may be regarded as part of the generally favorable economic conditions since World War II which have facilitated marriage.

4. Better economic conditions have also contributed to the increase of families by decreasing the "doubling-up" in households. At least 14 percent of the increase in families between 1950 and 1957 was due to the decrease in subfamilies which would have otherwise lived with relatives (*2b*).

Fertility Rates

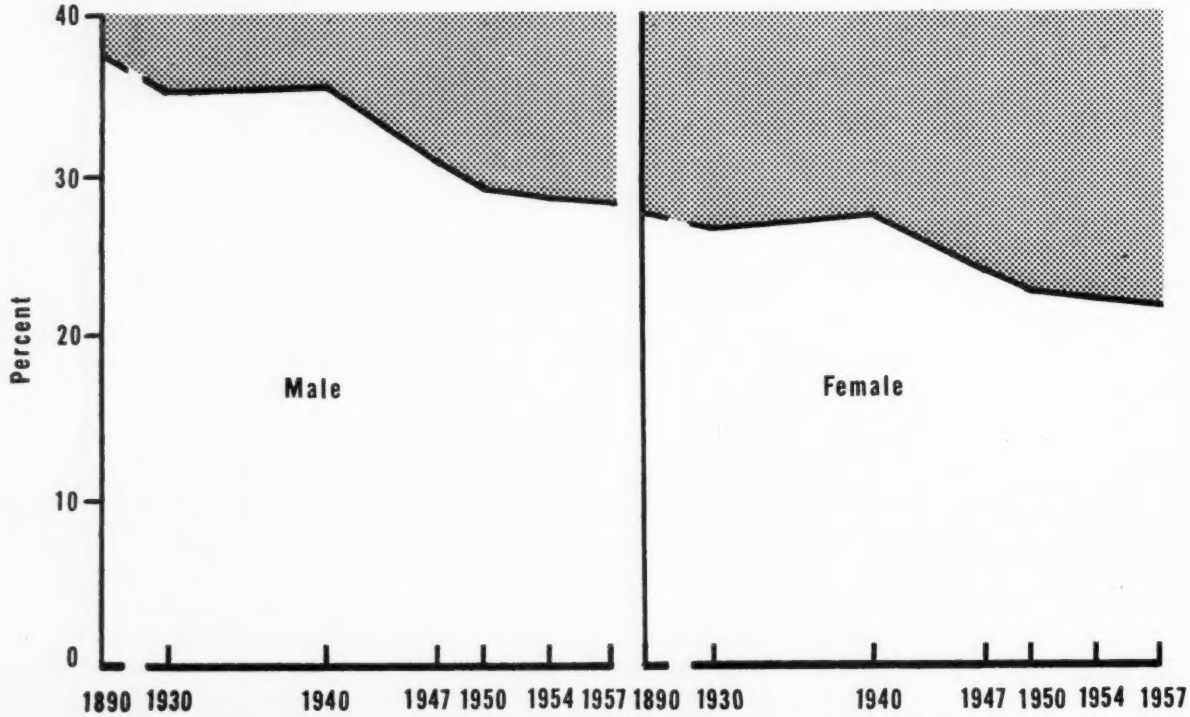
Parents today apparently want, or can afford, to care for more children. In 1956, the fertility rate reached 120.8 infants born alive per 1,000 women 15–44 years of age, which is in sharp contrast to the 1940 rate of 79.9 and is in excess of the 1947 rate of 113.3, the year of the "baby boom." Most important for trends in family size is that the increase in fertility rates in recent years has been due to increasing rates of third and higher order births, which have continued to rise since 1950 (*3b*). Between 1950 and 1957, all age groups of women 15–44 years of age who were ever married showed a marked increase in the number of children born to them. Moreover, while women with increasing education have fewer children, the proportional gains in fertility between 1950 and 1957 were greater as the level of education increased, excluding those with less than 8 years of schooling and with 4 or more years of college. Also, the proportional increase in fertility in the last 7 years was greater among women aged 15–44 in the labor force than among those not in the labor force (*2c*).

Family Composition

Despite the marked increase in fertility and children born, the average size of families has increased but little and only in the last few years. Average family size, which had decreased to 3.76 persons in 1940, decreased further to 3.53 persons in 1953. By 1957, the average size of families rose to 3.61, although this is still below the level for 1947 (*1f,2d*).

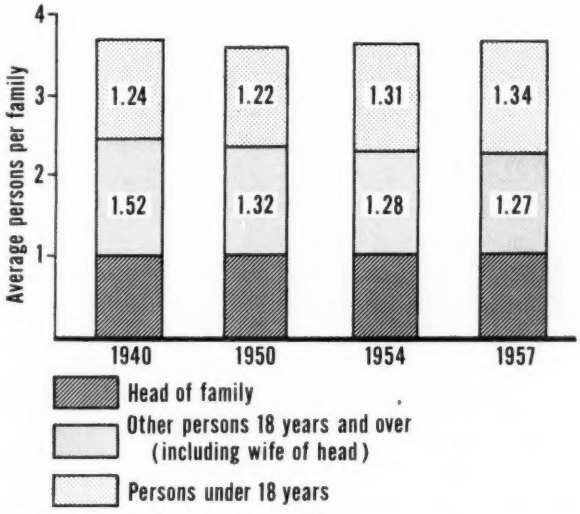
The decline in family size up to 1953 is the

Figure 1. Percentage of persons never married, 14 years old and older, by sex, 1890–1957.



NOTE: Standardized for age; based on the age distribution of the 1940 population.
SOURCE: References 1a and 2a.

Figure 2. Average family size and family members, by type, 1940, 1950, 1954, 1957.



SOURCE: References 1f and 2d.

result of the changing composition of families (fig. 2). Between 1940 and 1950, the average number of family members under 18 years of age decreased as a result of low birth rates in the 1930's. Between 1950 and 1954, the rising fertility of the late 1940's and early 1950's brought a substantial increase in the average number of family members under 18 years old (*1f,2d*). This trend continued to 1957 when there were 1.34 persons under 18 compared with 1.17 in 1950. However, throughout the period 1940–57, the average number of persons over 18 years of age fell from 2.52 to 2.27 (*2e*).

Changes in the household and family situation of persons over 65 years of age have been small, but in the direction of increasing isolation from kinsfolk. Between 1950 and 1957, the proportion of persons over 65 who were classified as unrelated individuals or inmates of institutions increased from 23.5 percent to 24.8 percent, or by 3,645,000 people. Among those 75 years of age and older, in the same period, the proportion classified as unrelated or as inmates of institutions rose from 27.8 to 30.2 percent, which was due to the increase in unrelated individuals.

Between 1950 and 1957, the proportion of persons over 65 years of age who were family members, but not the head of the family or the wife of the head (that is, dependent elders usually), declined from 21.2 to 18.1 percent. In the same period, the proportion who were heads or wives of heads of husband-wife families increased from 44.4 to 47.2 percent (*4,2f*). The majority of these latter families (70.8 percent in 1953) were elderly couples with no other adult family members (*1g*). Also, most of these husband-wife families owned their own homes. The median income in 1949, however, was less than half, $1,129, that for all husband-wife families, $2,803 (*1h*).

Socioeconomic Conditions

The social and economic conditions of families have generally improved throughout the period 1940–57. The educational achievement of husbands in husband-wife families has increased from an average of 8.0 years in 1940 to 10.8 years in 1957. The educational improvement was greater for younger than for older husbands (*1i,2g*). Improvements in housing are reflected in less "doubling-up" of the generations. From 1947, when 8.7 percent of married couples were without their own household, the percentage dropped to 3.2 in 1957 (*1j,2h*).

Although money income alone is only a fair indicator of an increase in real wealth or buying power, the trend in family income, which has increased every year except 1949 and 1954 (from a median of $2,533 in 1944 to $4,971 in 1957), undoubtedly represents a real gain in the economic conditions of families (*5a,b*).

The improved social and economic conditions of families are associated with the increasing number of families with more than one earner, and especially with the increase of women in the labor force. Between 1948 and 1956, the number of families with more than one earner increased from 41 to 46 percent among nonfarm families and 37 to 42 percent among farm families (*5c*).

Despite the increasing number of dependent children in families, the participation of married women in the labor force has increased. Among married women living with their husbands, 14.7 percent were in the labor force in 1940, and 29.6 percent in 1957. The increased participation was largest for married women over 35 years of age, which rose from 20.1 percent in 1947 to 30.0 percent in 1956; the largest proportional contribution to this

growth was among women 45 to 64 years of age (*6a,b*). In 1955, husband-wife families with the wife in the labor force had a median income of $5,622, compared with $4,326 for families in which the wife did not work (*5d*). The thought is suggested from these and similar data that the erstwhile productive functions of the family unit may be returning in a new institutional form.

From the point of view of family growth, children seem to be less a barrier to the employment of the mother than formerly. The percentage increase between 1950 and 1957 in children born per 1,000 women 15–44 years old who were ever married was 13 percent greater among women who worked, a 30.7 percent increase, than among those not in the labor force, a 17.9 percent increase (*2i*).

This increase results in part from the greater increase of married women over 35 years old in the labor force, that is, women who have completed or nearly completed their childbearing. The proportion of married women in the labor force decreases with duration of marriage through the first few years, indicating that women leave the labor force during the early years of childbearing (*7*). Women with children under 6 years of age have a lower proportion in the labor force at all ages than women without children under 6, but the proportion increases among these women as age increases (*6c*). As the children enter school, mothers tend to return to work, as indicated by the much greater participation of women with children 6 to 17 years of age but none under 6 years old.

A current deficiency in statistics on the family is the lack of data on total family health, but certain indexes from vital statistics data reflect improvements in the health of family members. Between 1940 and 1956, the improvement in life expectancy at birth rose from 62.8 to 67.3 years for white males, and from 67.3 to 73.7 for white females. Although the improvement in life expectancy was greater for nonwhite males and females than for white persons in this period, a marked disparity remains (*3c*). Infant mortality provides another index, declining from a rate of 47.0 per 1,000 live births in 1940 to 26.0 in 1956 (*8a,3d*). Maternal mortality offers a similar picture of marked gains in health for the family: a rate of 37.6 per 10,000 live births in 1940 dropped to 4.1 in 1956 (*8b,3e*).

Family Stability

The increasing proportion of remarried persons, mentioned earlier, and the increasing proportion of divorced persons suggest a growing problem of family instability. Actually, on the basis of available data, it is extremely difficult to assess the trend in family stability. The percentage of men currently divorced rose from 1.2 in 1940 to 1.8 in 1954; for women it rose from 1.6 to 2.2 in the same period. Between 1954 and 1957, the change in the percentage of persons currently divorced was negligible (*1a,2a*). The trend in the divorce rate per 1,000 women 15 years old and older through this period gives a different impression. From its highest point of 17.8 per 1,000 married women 15 and over in 1946, the divorce rate declined to 9.4 in 1956 (*3f*). Divorce trends alone can be misleading in assessing trends in family instability, since they do not reflect the total population of families broken by separation and desertion, from which the majority of divorces arise. Much more detailed study, based on reliable nationwide statistics of family formation and dissolution, is needed before conclusive analyses can be presented.

Divorce has increased in relation to death as a type of family dissolution. While the proportion of currently divorced persons rose between 1940 and 1954, the proportion of currently widowed persons declined in the same period (*1a*). Comparisons of the trends in currently divorced and currently widowed understate the relative increase of divorces, since proportionately more people who were ever divorced are likely to be among the remarried at a given time than persons who were ever widowed. Most important is the fact that divorce, by and large, affects families relatively early in marriage, while death affects them much later.

Marriages of young persons (women less than 21 years of age) are less likely to be permanent than marriages of somewhat older persons (*1k*). Divorce rates are considerably higher for nonwhite than for white women, as

are rates of separation and widowhood. Divorce rates are lowest for women with 4 or more years of college, and highest for women with 1 to 3 years of high school. The rates of separation for women vary inversely with education (*11*). In recent years, the proportion of divorces affecting children and the median number of children per divorce involving children have increased (*3g*).

Illegitimacy is an increasing problem in family life. Between 1940 and 1956, the illegitimacy rate rose from 7.1 per 1,000 unmarried women 15–44 years of age to 20.2. The ratio of illegitimate births per 1,000 live births increased from 17.5 to 19.0 for white persons and 179.6 to 204.0 for nonwhite persons between 1950 and 1956 (*9,10*). In one study, premarital pregnancy was found to be associated with divorce and with young age at marriage (*11*).

Basic Problems

While many of the trends in American family life, especially since World War II, may be regarded as encouraging, sight must not be lost of the fact that many social problems thought to be closely related to family life have been increasing. Among these we may list juvenile delinquency, mental illness, illegitimacy, and living conditions and productive opportunities for our elder citizens.

In addition, with the improvement of public health methods in combating the great killers of yesterday, our attention must turn more and more to the prevention and control of chronic disease that saps the will and the physical energy of so many, especially in later years.

A basic step in understanding these problems and effecting preventive techniques lies in a more detailed study of the family as the unit of social, mental, and physical health. Among the research needs concerning the family, mention should be made of at least the following:

1. A statistically useful definition of the family for health and welfare purposes, including all relevant persons in and out of the household unit.

2. Nationwide coverage of marriage and divorce statistics, based on the centralized registration of marriages and divorces in all of the States. Data broadly similar to those obtained for divorces should be obtained for families broken by death and separation.

3. More intensive study of differential mortality by marital status, age, sex, and race to locate the social and psychological correlates of mortality differences.

4. Intensive studies of health conditions and practices in the family unit as a whole, and of the functions of the family in rehabilitation and in preventing and treating illness.

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BCG Vaccination

Although it is generally accepted that the role of BCG vaccination, always limited in the United States, is diminishing even further, some advocates continue to propose more extended use of it. Consideration of current trends in tuberculosis suggests that the proponents of BCG have not given sufficient weight to basic changes in the epidemiology of the disease. One of the most significant of these is that the infection rate has dropped sharply in recent years. There is good reason to believe that, with continuation of our tuberculosis control efforts, the acquisition of new tuberculosis infection in this country may become a rare event.

What now are the disadvantages? Even in the face of grossly diminished need, BCG vaccination would be justified if it offered complete protection. Carefully conducted and controlled studies, here and abroad, yield sharply conflicting evidence on this point. Studies in this country do the least to affirm the usefulness of such vaccination. Not only are there doubts regarding the benefits of BCG, but there are complicating factors as well. Probably the most important is that BCG causes tuberculin sensitivity, making it virtually impossible to differentiate by skin testing between persons who have been vaccinated and persons who have been infected with virulent tubercle bacilli.

Most of our cases in this country today are persons who were previously infected, some many years ago. BCG offers no protection to these people. Indeed, it would enormously complicate the problem of identifying them so they can benefit from other public health measures.

Other problems would result from the general use of BCG vaccine. Any appreciable increase in nonspecific reactions to tuberculin would obscure the measurement of trends of tuberculosis infection, the search for source or index cases, and the selection of groups of younger people for X-ray screening. Also, a valuable tool in differential diagnosis would be lost to us.

Because of the vanishing need for BCG vaccination, its limited effectiveness, and the disadvantages attendant on its use, few health officers will find situations in their jurisdictions where the risk is so high and the exposure so truly unavoidable as to warrant resorting to BCG vaccination.

—Ralph E. Dwork, M.D., *director of health, State of Ohio.*

U.S. National Health Survey

Collection of Data on Accidental Injuries

PHILIP S. LAWRENCE, Sc.D.

CONSIDERING that accidental injury is the major cause of death in the United States for the ages 1 to 35 years, there is an obvious need to collect and evaluate data about accidents by methods which may lead to plans for accident reduction.

The U.S. National Health Survey, authorized by Congress in 1957, specifically instructs the Public Health Service to evaluate the methods of gathering data and to facilitate the development of similar data by others, so as to speed the day when the acquired knowledge may be applied.

With this instruction in mind, the following account is offered of our methods of obtaining information on accidental injuries. The magnitude of this one class of morbidity may be judged by the fact that we calculate there were 47 million injuries in a year which resulted in medical consultation, or in restriction of the person's usual activity. Of this number, 40 percent were home injuries.

This calculation is based upon a scientifically designed sample of the population of the United States. The count from the sample was expanded to give a national estimate for which we can measure the margin of error due to the sampling procedure. From among 1,900 counties or groups of counties into which the whole country is divided, 500 are obtained in the first stage of sampling. Further sampling stages yield the final units, called segments, each of which contains about six dwelling units where the interviewer knocks on the door.

Dr. Lawrence, chief of the Household Survey Analysis Section, National Health Survey Program, Public Health Service, presented this paper at the 46th National Safety Congress in Chicago, October 22, 1958.

Interviewing is done continuously throughout the year, but each week's sample is a representative sample of the Nation. This makes it possible to produce weekly estimates of events that occur often in the population, or to combine weekly samples to obtain quarterly or annual estimates for less frequent events or for subgroups of the population.

About 6,000 segments, or 36,000 households containing roughly 115,000 persons, are included in the interviews during the course of 1 year. These households are scattered through every State, but the sample is not designed to produce individual State estimates. One year's data will provide estimates for 12 major geographic sections; for 8 metropolitan areas; or for all of the metropolitan, urban, rural, and rural-farm divisions of the Nation.

The interviews are conducted by 125 interviewers who are under the guidance and supervision of the Bureau of the Census. The data are obtained according to specifications of the Public Health Service. In a program of this kind the question of reliability of the basic data is of primary importance. For this reason numerous controls are built into the program for the purpose of maintaining quality. Interviewers are selected by examination and are further selected and trained in several steps, including group sessions and supervisor's observation of practice interviews. Several times each year refresher courses are given both interviewers and supervisors. Once each month interviewers are given written examinations. The survey also includes, as a continuing procedure, re-interviews by the supervisors of about one-sixth of all households. A final evaluation of interview quality is made at the data-processing stage where errors and omissions by each interviewer are

routinely tabulated and transmitted to regional supervisors. During other steps of data processing, further controls are applied. For example, all coding of medical conditions is done independently in duplicate. The codes are then compared and differences are corrected.

The Questionnaire

Interviews are conducted with a responsible adult in the home, with the requirements that all adults present at the time must be interviewed for themselves and that no one may be the respondent for any unrelated person. The interviewer does not ask about deceased members of the household. Therefore, we do not obtain data on injuries from which the person died within a few days after the accident.

Assume that an interviewer has called at a dwelling place. She has asked about the composition of the household and has obtained for each member such personal characteristics as relationship, age, sex, race, marital status, and education. She now asks a series of questions to get information about the presence of current illnesses, injuries, chronic diseases, or impairments. Among these questions there are three which are most likely to reveal an injury condition. "Last week or the week before, did you have any accidents or injuries, either at home or away from home?" "Last week or the week before did you feel any ill effects from an earlier accident or injury?" "Does anyone in the family have any of these conditions?" After the last of these questions, the interviewer slowly reads a list which includes impairments such as deafness, serious trouble with vision, amputations, paralysis, and any permanent stiffness or deformity of any part of the body.

These questions result in two types of measurement of accidental injury. One type consists of the prevalence of impairments or aftereffects of accidents that occurred at some time in the past. The other is the incidence, or rate of occurrence, of new accidental injuries within the preceding 2 weeks. To measure the incidence of injury, a 2-week recall period is used. Two weeks was selected as a reasonable time interval during which people can remember the occurrence of acute conditions or injuries. Studies have indicated that longer recall periods result in loss of information. Since about half of the tabulated injuries in this survey were reported as having occurred "last week" and half the "week before," there appears to be very little memory loss for injuries within a 2-week period.

Assume that the respondent has reported some sort of accidental injury. Our interviewer records the condition and then asks additional questions to define further the nature of the injury. She asks, "Did you ever talk to a doctor about it?" "What did the doctor say it was—did he use any medical terms?" "What kind of injury was it?" "What part of the body was hurt?"

Having defined the kind of injury, the interviewer asks about the time and place of the accident. "When did it happen?" "Where did it happen?" "Was a car, truck, bus, or other motor vehicle involved in any way?" "Were you at your job or business when the accident happened?" These questions permit us to separate accidents which happened in or about the home from other types. They further define whether the accident itself occurred in the preceding 2 weeks or whether the condition reported is an aftereffect of an earlier accident.

Information is not obtained as to how the accident happened. We know at this point, for example, whether it resulted in a burn or a fracture or an amputation, but we do not know whether the immediate cause was an explosion, a fall, or a collision. The kind of information needed to classify accidents by type cannot be accurately obtained from a few brief questions. In our aim to provide a panorama which includes many areas of health and medical care we have had to sacrifice some information on each topic. However, information on the type of accident will be obtained in a future addition to the questionnaire.

Measuring the Effects of Injuries

The principal advantage of the household survey method is that certain types of information can best be obtained from the people themselves. This is true with respect to the effect illness or injury has on their lives and what actions they take in relation to these conditions.

Our hypothetical interviewer has already asked whether the person has consulted a doctor. She is now ready to find out about other actions taken, and she proceeds with several questions: "Last week or the week before did this injury cause you to cut down on your usual activities for as much as a day?" "How many days?" "How many of these days were you in bed all or most of the day?" "How many days did the injury keep you from going to work?" In the case of a child, "How many days did it keep him from going to school?" Our interviewer then asks whether the person has any of several types of permanent or long-lasting limitations of activity or of mobility. Finally she inquires about the person's hospital experience.

We consider a positive response to any of these questions as a form of disability. In other words, we define "disability" as any temporary or long-term reduction of a person's activity. The criterion of the least severe disability in our data would be 1 full day of restriction of usual activity which did not involve confinement to bed. From this point further degrees of severity of disability can be defined, depending upon whether there were bed days, hospital days, or some type of chronic limitation. School-loss days or work-loss days refer to special population groups, children or persons who usually work.

Information on disability is of primary interest to many people. It is around some concept of disability that programs are often planned and that the economic consequences of ill health or injury are often measured. The word "disability" is not only widely used but has taken on a wide variety of meanings for the purposes of different kinds of programs. I do not want to describe the many different ways by which disability is classified. It is important to note, however, that tabulations which include, or exclude, injuries on the basis of different definitions of disability are almost certain to lead to different estimates of the rate of occurrence of injuries. Reports of injuries by various organizations may all be reliable, but they still may differ because of the sources of data and the definitions employed.

In the National Health Survey interviews, respondents report to us all degrees of injury. However, we tabulate and publish information only on injuries for which the person consulted a doctor or which caused the person to cut down on his usual activities for at least 1 full day. Injuries of this degree amount to about 56 percent of all injuries or 51 percent of the home injuries that the respondents have told us about. We, as well as others, have been surprised at the large volume of injuries shown in publications from the National Health Survey. Yet these figures include little more than half of the injuries originally reported to us in the household interviews.

What the Survey Can and Cannot Do

From this account of the way in which the survey is conducted and how injuries are measured, it is apparent that there are many questions that cannot be effectively answered by the household survey of the National Health Survey Program.

First, we cannot estimate the number of accidents because we have no way of connecting together several people who may have been injured in the same accident. We can estimate the number of injuries or the average number of persons injured.

Because we use a 2-week recall period we cannot count the number of people who had any given number of accidents during a period of say 1 year. We cannot, therefore, study the question of accident-prone individuals.

The National Health Survey cannot provide any detailed epidemiological information such as the circumstances that led up to the accident, or the kinds of equipment, or names of products that were involved. Epidemiological research of these types can be, and should be, made by smaller, more intensive studies which might employ sources of data other than a household survey.

The survey covers only the experience in the preceding 2 weeks of people who were living at the time of the interview. For this reason the survey cannot supply information about injuries that result in death within a few days of the accident. The kinds of fatal injuries, the amount of hospital and physician care required, and the circumstances of the fatal accident must be obtained from other sources.

We cannot provide clinical or detailed diagnostic data. A respondent probably could not tell us that he had a Colles' fracture of the radius, but he could tell us that he broke his lower arm. Yet detailed diagnostic information might be needed, for example, in a program which aims to develop protective equipment.

Finally, within its present scope, the National Health Survey is unable to obtain estimates of injuries for individual States, counties, or communities. A city which desired to obtain illness or injury information from its own population sample could, however, employ methods of interviewing and of questionnaire design similar to those of the survey.

It is evident that there are many things about home injuries which we are not prepared to answer and which should be answered by other methods or by local research projects. However, there are some types of information that can be more effectively obtained by this survey than by any other present methods or sources.

One distinct advantage is that the national survey can provide information along broad baselines. For some years there has been a tendency to generalize the results of small studies to apply to the Nation as a whole. With a national sample we now have, or will soon have, estimates of injuries and other conditions for the Nation, for major geographic regions, and for a number of urban and rural population groups. The sample not only provides information on ill and injured persons, but on the characteristics of the population in which the cases occurred. This makes it possible to produce rates of occurrence for urban or farm groups; for different educational or income classes; by marital status; by usual activity; or for other subgroups of the population.

Since the program is on a continuing basis, the survey can obtain time trends for data that have a seasonal or cyclical pattern. The continuing nature of the survey may also be an asset in periodic measurement of health factors that could change as a result of preventive programs, new techniques or increased use of medical care, or changes in national economic conditions.

One other advantage of the household survey method has already been touched upon. This is the capability of ascertaining the effect of the injury on the person's life in terms of disability. Information on disability is important for motor vehicle injuries and for work injuries as well as for those which occur in the home. However, the household survey method is particularly useful with respect to data on home injuries. Information on motor vehicle injuries of certain degrees of severity can be obtained from official reports. Data on work injuries, at least those of an industrial nature, are obtainable from records and reports of industries. Hospitals have certain data on persons who are injured severely enough to come through their doors. But for the great bulk of home injuries there has been no centralized source of information. Many of these home injuries are of a less severe nature, but they nevertheless constitute a sizable part of medical care needs, of lost time from work, and of bed disability.

As time goes on the National Health Survey Program will publish increasing amounts of data on home injuries. It is hoped that these data will be useful to people engaged in safety programs by helping them to assess the extent of the problem, by providing information on various characteristics of persons injured in home accidents, and particularly by stimulating research and program planning in this very important aspect of the health of the people.

Poliomyelitis Packet

A poliomyelitis packet designed to help health departments promote immunization programs is available without charge from the Communicable Disease Center, Atlanta, Ga. Samples of the packet have been sent to State health departments.

Group medical practice as an innovation depends for acceptance or rejection on how those involved in it perceive it. If these perceptions conflict with the individual's behavior and ideas, there is clearly a need for understanding and action.

Provision of Medical Care

History • Sociology • Innovation

GEORGE ROSEN, M.D., Ph.D.

WHEN the Committee on the Costs of Medical Care published its final report in November 1932, the majority submitted a program with five basic recommendations. The first of these proposed "that medical service, both preventive and therapeutic, should be furnished by organized groups of physicians, dentists, nurses, pharmacists, and other associated personnel. Such groups should be organized, preferably around a hospital, for rendering complete home, office, and hospital care. The form of organization should encourage the maintenance of high standards and the development or preservation of a personal relation between patient and physician" (*1*). The more sanguine proponents of this course of action felt that group medical practice was a logical and reasonable step toward improved organization and provision of medical care, and that it would spread rapidly. But this did not happen.

Organizations designed to provide medical care through some form of group practice have developed slowly but steadily in the intervening 25 years. Some have been organized by consumers using the Rochdale principles of cooperation. Others have been created by groups of physicians in noninsured practice, by labor unions, and by groups in the community who wish to make comprehensive medical care available to low- and middle-income groups. A number of these are associated with prepayment plans, notably with the Health Insurance Plan of Greater New York and the Kaiser Foundation Health Plan.

Recently, questions have been raised concerning the slow growth of such plans, and critical views have been expressed on the gap between promise and practice in group medical care (*2–4a*). These critiques have highlighted certain painful inadequacies and have focused attention on the importance of solving these problems, but the proposed remedies tend to concern themselves with surface manifestations or to dissolve in hortatory admonitions. In a discussion of the quality of medical care at the recent National Conference on Labor Health Services, one participant remarked: "When people leave a group practice program to join a fee-for-service plan . . . the gauntlet has been thrown down to the service plan. There must be reasons for this, because workers generally reflect the degree of satisfaction with the serv-

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ice" (*4b*). And while the speaker conceded that there may be multiple reasons, these apparently derived simply from the lack of "the amenities, the niceties, the timeliness, the promptness, the personal touch," or something desired by the patient. There is no apparent appreciation that such phenomena may be symptomatic of more deeply rooted causes. Furthermore, while this speaker and others dealing with this problem give evidence of an empirical awareness that medical care is a social activity organized in certain institutional forms, there is no reference to the existence of a body of scientific theory and knowledge which may throw light on the problems previously indicated, and perhaps point to ways of mastering them.

Medical care in some form has been an element of group living throughout history, and in all likelihood long before recorded history. Moreover, as a social function it is integrated and interlocked with other elements in the structure of group living of which it is a part, with government, the economy, the family, religion, and others. All human actions must be studied within a framework conditioned by men, with an understanding of men's ideas of the present and hopes for the future. Historical continuity derives from common challenges and purposeful responses to meet these challenges. One such constant has been the continuing search for security from the unpredictable impacts and hazards of ill health and its concomitants. Another aspect of continuity is the human aspiration toward self-fulfillment, the individual's need for self-expression. Such needs may reinforce each other or run counter one to another, thus creating tensions. The result is a variety of actions and reactions under differing circumstances and in widely divergent ideological climates. Yet these actions and reactions provide a pattern which makes possible an understanding of behavior and process. For a major contribution of historical analysis is to penetrate the process of development. Institutions, patterns of behavior, systems of ideas, methods of control—all have developed from something which was there before. The hospital, the health department, fee-for-service medical practice, the theory of animate contagion—all illustrate this truism which is too often forgotten. For these reasons it may be useful to consider group medical practice in historical and sociological terms, and to see whether historical analysis and sociological investigation may not enhance our understanding of its present condition.

Sociology, History, and Medical Care

The provision of medical service is an activity involving interaction between two or more human beings, thus creating a social system. At the same time, the participants in this system are also members of other larger and smaller social systems, which form the greater part of their environment, and which exert a determining influence on their thought and action. Without knowledge of this environment, the behavior of the physician, of the medical profession, of the patient and his family, and of others involved in the provision of medical care cannot be fully understood and taken into account in changing traditional ways of providing medical care and adopting new forms for this purpose. Within this environment, there is a social order characterized by differential distribution of power, accessibility to ways of earning a living, prestige, and status. The participants in this order have defined roles, specified behaviors considered appropriate to these roles, and values which motivate or are presumed to motivate the participants. Associated with this system, supporting it and interlocking with it, are complexes of knowledge, techniques, beliefs, values, attitudes, norms, symbols, rituals, and customs. Some of these are shared widely in a society; others are the concern of smaller groups.

The medical profession, like other occupational groups, has a body of shared ideas, values, and standards. Members of the profession are expected to orient their behavior in relation to patients, colleagues, and the community at large in terms of norms and values generally accepted and agreed upon. Many of these ideas and behavior patterns have been transmitted from the past and are adhered to even though the situation has changed radically. Adherence to systems of inappropriate or incompatible values and norms is not peculiar to physicians; it is characteristic of other

groups as well. Nonetheless it remains a phenomenon to be taken into account in studying the development of new methods for providing medical service.

Medical Ideology and Practice

The physician as we know him today in the United States and in other countries is a relative newcomer. The general practitioner is some 200 years old in this country, and about 100 years in Great Britain (*5*, *6*). The 19th century also saw the appearance of the general practitioner in France and Germany out of the fusion and elimination of several categories of practitioners. The modern specialist made his appearance around the fifties and sixties of the last century (*7*). Most characteristic of these practitioners from a social and economic viewpoint was that they were individual, small entrepreneurs, members of the middle class. As small entrepreneurs, they shared the socioeconomic attitudes and views of other middle-class groups. (Social and economic class as used in this discussion refers to configurations of behavior—occupational or productive activity, life styles, patterns of consumption, political and other belief systems—which exhibit a sufficient degree of consistency to make it possible to distinguish from one another groups in the social organization of a community. This does not imply that social and economic classes are homogeneous layers in a social structure. This is particularly so in the case of the middle class. Initially, in the medieval urban communities a somewhat cohesive social and functional group of merchants, tradesmen, and artisans, it has undergone changes in the course of history. New alignments and tensions between various intermediate economic or social groups have led to such essentially historical designations as the older and the newer middle classes. Among the various component elements of the middle class may be counted middle-size entrepreneurs in industry and trade, small shopkeepers, professionals such as the physician, lawyer, and teacher, and officials and salaried employees. According to the Oxford English Dictionary, the term "middle class" was employed in 1812, and John Wade, in 1833, refers to the "middle classes" (*8–13*).)

The fact that these practitioners were small entrepreneurs and shared the socioeconomic attitudes and views of other middle-class groups has been most clearly evident in the United States. The social philosophy of liberalism, combining the ideas of Adam Smith and Thomas Jefferson, provided the ideological framework for these attitudes. The task of government was to provide the fundamental security needed for community life, especially the protection of property, but government action was to be kept to a minimum. There was little or no need for a strong central authority, because local government could handle most community problems. As far as possible, it was felt, the individual should be free of regulation and given full scope for individual initiative. While certain undertakings required joint action within the community, each man was held to be entitled to carve out for himself the largest possible stake.

The American physician of the 19th century shared these views with his neighbors and acted accordingly. Each man was sufficient unto himself, except as he adhered to rules of professional behavior established by his colleagues. Competition was accepted as natural and was quite brisk. According to William J. Mayo: "Competitive medicine was the response of the individual physician to his training and environment. It fostered self-sufficiency and jealousy" (*14*). The physician ran his practice from his office, with little recourse to the hospital or to complicated equipment.

Social Change and Group Practice

Since the end of the 19th century, and to an increasing degree following the First World War, this self-sufficiency has been undermined. The physician and his practice have become inextricably intermeshed with the increasingly complex social organization which exists for the provision of medical care. In this process the hospital has come to occupy a central position. (This association of the physician, particularly the general practitioner, with the hospital occurred to a much greater degree in the United States than in Great Britain or on the continent. For all practical purposes, the general physician has not been a member of the

hospital staff in Britain or in countries such as Germany, Austria, or France. The movement to exclude the general practitioner from American hospitals is a recent development and has led to various countermeasures.)

The practitioner must depend on expensive equipment, as well as on specialists and technicians for diagnosis and treatment. The situation was strikingly illustrated by Dochez in a comparative picture of the complex changes wrought in medical practice over three decades (*15*). He contrasted the histories of two patients with similar types of heart disease; one was recorded in 1908, the other at the same hospital in 1938. The total written record of the first patient occupies 2½ pages and the observations represent the combined efforts of 2 physicians, the attending and the house officer, and of 1 specialist, the pathologist-bacteriologist. The record of the second patient, who was still in the hospital when Dochez made this comparison, comprised 29 pages and represented the combined observations of 3 visiting physicians, 2 residents, 3 house officers, 10 specialists, and 14 technicians, a total of 32 individuals.

Today, the medical practitioner must have some hospital connection, both for his patients and for himself (*16–19*). The fledgling physician is no longer apprenticed to another physician, but to a bureaucratic institution, the hospital, where he serves as intern and resident. Furthermore, he must depend on relations with other medical men to get started in practice and to keep a clientele. Throughout his career, hospital appointments are crucial to his practice and to his advance in some medical hierarchy. To a considerable degree, the referral mechanism is controlled by informal cliques in hospitals. At the same time there has been an increase in the number of ancillary occupations filled by persons on a salaried basis. One major consequence of this system has been to narrow the area of practice (the market) of the general physician, and to imply, often correctly, that he is not competent to handle a number of types of illness.

These trends and facts underlie the behavior of physicians in relation to various forms of prepaid and organized medical care: Blue Cross, Blue Shield, prepayment group practice plans, hospitals, union health plans and centers, and above all, government action in the health field. Viewed and interpreted sociologically, the behavior of a large part of the medical profession represents the reaction of a segment of the older middle class to the process which is compelling it to come to terms with modern industrialized society. To use an analogy, one may say that medicine is experiencing its Industrial Revolution, and that the medical practitioner is being brought into the "factory" (the hospital and the whole complex organization for the provision of medical care), where he is being subjected, on a privileged basis, to the requisite "labor discipline."

Competition and Survival

The entire profession and its field of action are undergoing change, but different kinds of practitioners face varying situations. The general physician endeavors to keep hospitals, specialists, and other organizations and individuals concerned with medical care from competing with him and limiting the area of his activity in ways which he considers unfair. This aim is implicit in the establishment of the Academy of General Practice, of general-practice departments in hospitals, in the idea of an American Board of General Practice, and in the opposition to review and control of the quality of medical care offered by prepayment organizations and welfare funds. The general situation also affects the specialist, who wishes to maintain the status quo so that his privileged position will not be altered. He endeavors to render ineffective any threatened competition. Considerations of this kind, whether overt or covert, are involved in the insistence on free choice of physician, on fee-for-service practice, and in all the other battle cries that have echoed on the medical care battlefields for more than four decades.

But while the self-sufficiency of the physician as entrepreneur is undermined by the march of science, technology, and social organization, the ideology of competition and rugged individualism still remains the uncompromising official creed. According to this ideology, the solitary individual, endowed with personal merit, makes his way against others in the open market. The effort involved in this competitive process provides, it is believed, the condition

for the development of self-reliance and the achievement of success. Under the impact of expanding industrialism in the United States, the medical profession joined other middle-class groups in accepting this philosophy and applying it to questions of public health and medical care. Theoretical justification for refusing to use tax funds for the expansion of public health work, or for the provision of medical care and other aid to the poor, was sought in the Darwinian theory of evolution. Disease was a special case of the struggle for existence, and one of the means by which the fittest survived (*20*).

Today, the principle of State intervention and control in health matters is generally admitted, although variations may exist in practice due to the greater or lesser efficiency of the intervention and in the greater or lesser frankness with which the role of the State is admitted. Its emergence has come from the interaction of important economic and social trends. For one thing, during the period from the end of the 19th century to the present, the trend of economic organization has been the continuous and progressive replacement of smaller units by larger ones. The further this process advanced the more untenable has become the conception of noninterference by the State. But while other elements of the middle class, for example, the small businessman, sought protection against the large producer and competitor through government action, the medical profession was able to continue relatively untouched by change in the privileged sanctuary of private practice. And for the most part its ideology has remained intact.

The *Chicago Medical Journal and Examiner* wrote in 1879: "It is frequently stated that the poor should be protected by the government against the causes of disease which are said to infest the habitation of the lower classes. . . . It is the lazy people and their sentimental friends who are always calling for government aid. If now you undertake to protect this fraction of the community, you have to protect it against the consequences of idleness, luxury, intemperance and vice—thus interfering with the operation of the wholesome monitory laws of nature; and you do it at the expense of the meritorious classes of society. Having accustomed such worthless people to rely upon government for protection against smallpox, and scarlet fever, and syphilis, and diphtheria, and sewer-gas, and scabies, it will not need the passage of many generations before they will demand protection by the government against the cold and hunger and nakedness for which they should themselves make provision" (*21*).

The same gentle spirit still pervaded the editorial views of the *New York State Journal of Medicine* in 1949 (*22*, *23*): "Any experienced general practitioner will agree that what keeps the great majority of people well is the fact that they can't afford to be ill. That is a harsh, stern dictum and we readily admit that under it a certain number of cases of early tuberculosis and cancer, for example, may go undetected. Is it not better that a few such should perish rather than that the majority of the population should be encouraged on every occasion to run snivelling to the doctor? That in order to get their money's worth they should be sick at every available opportunity? They will find out in time that the services they think they get for nothing—but which the whole people of the United States would pay for—are also worth nothing."

Heresies

From the last decades of the 19th century to the present day, a variety of "heresies" in the financing and organization of medical care have been opposed with ideological weapons obtained from this philosophy. Dispensaries, free public clinics, contract medical schemes, and prepayment medical care plans have all aroused opposition and have been met with similar arguments. The abuse of medical charity agitated physicians and their organizations from the 1880's onward (*24*, *25*). Allegedly, free clinics for the poor were being used by others less deserving of charity, who would consequently be "pauperized." To the concern with free clinics and their effects was soon added the problem of contract schemes, and just before the First World War came the movement for national health insurance. These innovations were opposed on the ground that they subsidized the inefficient and the lazy, they destroyed the personal relation between physician and patient, they decreased professional com-

petence, they were unethical, and similar arguments which still ring familiar.

It is clear that not all physicians shared the official view. For example, in 1889, J. L. White proposed a prepayment plan by which physicians would contract to provide services, emphasizing preventive care, for families for an annual fee (*26*). The following year a prepaid medical care plan was actually initiated in Chicago by J. K. Crawford and Oscar DeWolf, but the Chicago Medical Society condemned the two physicians (*25b*). Later, a small group in the American Medical Association also favored compulsory health insurance, but they could do little in the face of the dominant opposing view (*27*). To a certain extent, such innovating individuals and groups have been favored by periods of rapid social change and reform. This was true during the first decade of the 20th century, the era of progressivism, and to a certain extent during the New Deal thirties.

Under the threat of a national system of health insurance, voluntary health insurance has developed and spread. At least in principle, the American Medical Association has accepted prepayment group practice. Furthermore, a large part of the medical profession, about one-third, today works wholly or in part for salaries (in hospitals, medical schools, for other physicians, government agencies, unions, and pharmaceutical companies).

Continuing Tradition

Nonetheless, the emphasis is still on individual responsibility for medical care, fee-for-service solo practice, and free choice of physician. And even though the medical practitioner may not wholly subscribe to the philosophy, policies, and practices of the professional groups that represent him or speak in his name, he cannot help but be bound by these rules, at least in some measure, whether or not he is aware of this.

In becoming a member of his profession, the medical practitioner undergoes a process of socialization, involving not only the acquisition of knowledge and skills, but even more significantly, perhaps, the acquisition of the values, attitudes, and behavior patterns that enter into and make up the physician's role. Even when the practitioner deviates from the dominant values, attitudes, and behaviors of his profession, he rarely breaks completely with them. In considerable measure, his relations with his patients may still be determined by these elements, even when he practices in a different setting, for instance, in a medical group. Numerous elements of his role will still be appropriate in this new setting; others, however, are either totally or partially dysfunctional. As a consequence, working in a group practice setting requires changes of attitude and behavior resulting from the acquisition of new goals, reference groups, and relations with colleagues, patients, and other involved persons and groups.

Some forms of change are socially approved. Physicians, for example, are expected to keep abreast of new developments in medicine and related fields so that medical practice can be carried on at the highest possible level. Even here, tradition may exert a restraining influence. Change in the provision of medical care is not generally sanctioned by the groups that set the rules for medical behavior; indeed, it has occurred against strong opposition. Unless there is some compelling reason, change is not easily or lightly undertaken in such a situation by any group of people. During the Second World War, a considerable number of younger physicians in military service were apparently interested in group practice upon returning to civilian life (*28*). As is well known, however, they did not flock into group practice. While a number of factors were involved in this development, it appears likely that many of these physicians simply took the traditional path because it was easier, coinciding as it did with several other developments, among them, economic prosperity, a rise in the standard of living, social disapproval of nonconformity, as well as legal barriers to prepayment group practice. (This is an interesting problem for social research.)

Here one may ask: Would group practice have increased more rapidly had these conditions not existed? Obviously, such a question is difficult, if not impossible, to answer. Group practice requires the investment of capital to begin with, and that it be available when needed. It may be that even if the physicians had wanted to organize group practice units,

adequate capital resources might not have been available. After all, the Health Insurance Plan started with loans from several foundations, and it is noteworthy that the only other group practice plan of comparable size (Kaiser Plan) started on an industrial base. Furthermore, are there any inherent limitations in group practice as an organizational form? The answer must be that we do not know.

Nonetheless, there are hints from investigations concerned with the sociology of bureaucratic organizations. Some of the problems brought about by the size of an organization have been studied. Tsouderos, for example, in examining 10 voluntary organizations, found that the introduction of more formal procedures and greater specialization of function, as organizations grow, tends to alienate a number of individuals (*29*). The emergence of a heterogeneous membership can also be an outgrowth of the increasing size of an organization. Such a development carries with it the probability that the members will have dissimilar views on various matters. This in turn can lead to a decrease of consensus (*30*). However, none of these studies has been concerned with medical care plans, and one may suggest that group practice could be a fruitful area for research.

Role Performance

By virtue of the process of socialization, the physician acquires a scale of values, a set of attitudes, and a way of thinking and acting which is distinctive in various respects. Some of these are traditional and represent the "conventional wisdom" (to borrow a term from J. K. Galbraith's book, The Affluent Society) of the medical profession. As part of this process, there develops a professional self-image, a definition of the physician's role, which enables him to carry out his obligations under a variety of circumstances. In some environments, the performance of this role is more visible than in others and consequently more easily available for control (*31*). The physician in his private office is subject chiefly to the controls of the professional values and norms, to his concept of himself as a professional person, and to what he considers good practice. These controls are buttressed in varying degree by sanctions both within and outside the profession, such as expulsion from a medical society or a malpractice action. Otherwise, the physician in his office is not very visible in performing his role, except to patients usually unequipped to pass sound judgment on his action in technical terms.

Some environments are so structured that the practitioner is under the continuing scrutiny of others who appraise the way in which he performs his functions. This is true of the hospital, with its requirements for records, arrangements for staff conferences, consultations, and other accepted responsibilities. What is true of the hospital can apply equally in a prepayment group practice plan or in a labor union health center. In such organizations, the practitioner's behavior not only is visible to his colleagues, but is or may be scrutinized by prepayment plan officials or welfare fund administrators. Furthermore, there may not be agreement on the standards by which performance is judged. In any event, what exists in these organizations is a mechanism for social control which makes him subject to pressures of various kinds. Where the limits of observability in the medical situation are to be drawn is not easily determined, but it should be obvious that physicians strongly imbued with an individualistic ideology will not easily accept the controls involved in more complex types of medical care organization. (The problem is not limited to the performance of physicians and others involved in the provision of medical care. Similar problems confront members of the teaching profession (*32*).)

This thesis is based on Robert Merton's concept of the role-set, that is, the "complement of role-relationships in which persons are involved by virtue of occupying a particular social status" (*32*). In the case of the physician and his status, this entails not only the role of a practitioner vis-a-vis a patient, but also an array of other roles relating him to his colleagues in a medical group, to nurses, laboratory technicians, health plan administrators, medical societies, and the like. The relationships physicians have with persons in each of these positions are by no means identical, and involve situations calling for differing attitudes

and behavior. Patients, for example, will differ from physicians in their expectations of the medical practitioner to whom they come for care. Furthermore, not all those in the particular role-set are involved in the same way or in the same degree, and it is important to know what various participants in a role-set bring to it.

Social Class and Therapy

Ideally, the role performance of the physician in relation to a patient centers in impartially serving the patient's health needs regardless of any liking or antipathy he may have for the particular individual. Like all ideals, however, it is only approximated in reality; and this is true in solo practice as well as group practice.

The practice of medicine is affected by the social class system. That the physician is a member of the middle class has already been pointed out, and whether or not he is aware of it, much that he does is influenced by the element of social class. A number of studies in the United States and in other countries highlight the significance of class considerations. Diagnostic and therapeutic decisions, for example, are influenced by the social distance between the practitioner and the patient. Some physicians are either intuitively aware of this factor or have learned by experience to take it into account. In many instances, however, there is no awareness of the distance separating physician from patient, and consequently no attempt is made to narrow this gap.

Aubrey Lewis has pointed out that the psychiatrist and his patient usually share the same subculture, and can therefore define the situation and the problem in a mutually acceptable manner (*33*). This point has been made more explicit by a number of empirical investigations, which show that patients with mental illness who most nearly approach the practitioner's social class are likely to receive psychotherapy rather than organic therapy or no treatment and are more likely to be considered hopeful from a therapeutic viewpoint (*34*, *35*). Williams has called attention to the need for taking into account the class premises of the patient. If this is not done in psychiatry, differences in the perception of problems and their solution may lead to incorrect diagnostic conclusions (*36*).

Class perceptions and values of the patient may likewise affect practitioner-patient relations. In Regionville, for example, Koos found that members of the lower class felt that physicians were not particularly interested in them as patients. He further reported "a lack of communication between the physician and his patient. Part of this lack was due, no doubt, to the fact that physician and patient too often represent differing subcultures, and 'speak different languages'" (*37–39*).

Such observations are not limited to the United States, but have been reported from other countries, such as England and France (*40*, *41*). Furthermore, members of the lower social class are less likely to use child health clinics, have their children immunized, or use medical care services when they are members of a prepayment plan. Differences of this kind are likely to be accompanied by differences in expectations concerning illness and therapy. Persons in lower income groups, especially families of unskilled workers, are subject to a number of limitations which affect their behavior with respect to preventive medicine and medical care. For one thing, the horizon of this group is severely limited by fear, ignorance, and misunderstanding, as well as by different types of reaction to life situations. This is true not only of health (*42*, *43*). There is some evidence to suggest that the unskilled English worker feels that his ability to influence the course of events is severely limited. Consequently, there is less stress upon the individual's responsibility (*44a*). Furthermore, actions are confined generally to the needs of the moment, and the future is allowed to take care of itself. Working class families also tend to be suspicious of authority, and the official health agency may personify this (*44b*, *45*).

Orientation to upward mobility may be another factor which affects the patient's reaction to medical care organization. For example, proponents of group practice feel that this way of providing medical care simultaneously meets the needs of both patient and physician (*46*). Behind this idea is the implied premise that patients, physicians, administrators, and

others will see the group practice in the same way. Yet the actual members, the patients, in a group practice plan are more likely than not to be a heterogeneous group—teachers, firemen, machinists, government workers, bus boys, and so on—with diverse expectations and attitudes in terms of past experience, educational background, ethnic origin, social class, and the like. In HIP for instance, it was assumed on rational grounds that it would be more advantageous to all concerned to provide medical care through medical group centers. Yet, the only concrete experience that many workers have had in receiving care from anything resembling such a center is in clinics and outpatient departments of hospitals, of health departments, and similar agencies. Such services still have a "charity" connotation, or at least a lower status association for many people. Experiences in such facilities explain also "why outpatients feel like outcasts" (*47*). For such people, to receive care in a physician's private office is a step upward, and any move to bring them into a situation such as prepayment group practice with medical care provided in a facility which can be related to the objectionable clinic will be resented. Naturally, this does not apply to all, but there are enough people to whom it does apply and who make themselves heard. One may suggest that this is one of the factors behind the dual choice arrangement now offered by the Kaiser Foundation Health Plan and by the Health Insurance Plan of Greater New York. In short, the definition of the situation by the patient cannot be assumed to coincide automatically with that of the physician or of the health plan administrator. They may even run counter to one another.

Conclusion

Like the public health and social welfare movements, the movement for prepaid medical care in the United States was originally conceived and implemented chiefly by middle-class people, even though intended to benefit members of a lower social class. Motives of social amelioration propelled to action the proponents of such schemes as prepayment group practice, who were acutely aware of the economics of medical care and the social consequences of lack of care. Furthermore, members of the middle class are future oriented, prepared to forego present satisfactions in order to achieve future goals (*48*). Great value is placed on health as a means to an end, and the use of rationally calculated means to reach such a goal. Small wonder, then, that financing and administration have been the major concerns of the movement for increased and improved medical care. This is clearly evident in the otherwise excellent volume, Readings in Medical Care. But just as the Sabbath is made for man, so medical care is financed and organized to provide service to people, who whether one likes it or not are not all alike and do not all share the same goals, values, and norms. The health education program of the Health Insurance Plan, for example, is based on a recognition of this premise (*49*, *50*).

Only recently, however, has there appeared an explicit awareness of the central relevance of social science for the provision of medical care. Patients, physicians, administrators, union leaders—all have certain value orientations, behavioral characteristics, class memberships which are important factors in determining how medical care programs operate and what their outcome will be. The closer to the habitual the more easily accepted. Group medical practice as an innovation depends for acceptance or rejection on how those involved in it perceive it. If these perceptions conflict with the individual's behavior and ideas derived from his class position, there is clearly a need for understanding and action. Certainly, this is an area for research and the implementation of the resulting knowledge.

This analysis has touched on a number of points and has endeavored to indicate a framework—historical and sociological—within which group medical practice must be seen, if its problems are to be understood. There is a full awareness on my part of the possibility and the need for even more intensive analysis of various points. However, as the objective of this analysis is solely to call attention to important dimensions of the medical care problem and to stimulate thought and action concerning the ways in which significant contributions might be made to improved medical care, there is plenty of opportunity to occupy the energy and ingenuity of others.

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Methodology Research Award

The deadline for nominations for the Eighth Kimble Methodology Research Award is June 1, 1959. The award, $1,000 and a silver plaque, is given annually in recognition of the application of scientific knowledge to the public health laboratory.

Candidates from the United States, its Territories, and Canada will be considered. They may be nominated for making a fundamental contribution which serves as a baseline for the development of diagnostic methods within the province of a public health laboratory or for the adaptation of a fundamental contribution which makes it useful in a diagnostic laboratory.

The Kimble award, established by the Kimble Glass Co. of Toledo, Ohio, and sponsored by the Conference of State and Provincial Public Health Laboratory Directors, will be presented at the annual meeting of the conference in Atlantic City, N.J., in October 1959.

The rules governing nominations can be obtained by writing to Dr. E. T. Bynoe, chairman, nominating committee, Kimble Award, Laboratory of Hygiene, Department of National Health and Welfare, Ottawa, Ontario, Canada.

Personal Consumption Expenditures for Medical Care

Estimates of personal consumption expenditures for medical care items have been revised by the National Income Division of the Office of Business Economics in the Department of Commerce. The expenditure figures, which have been revised back to 1948, are being issued early in 1959 in U.S. Income and Output, a special supplement to the *Survey of Current Business*. They will appear in table II–4 in place of the previous table 30.

Below and on the next page are tabulated the personal consumption expenditures for medical care by type of product, in dollars and in percentage, for 1929 and 1933, which are unchanged; for 1948, 1950, and 1952–56, which have been revised; and for 1957, which are in the current series.

For 1956, the revised total of personal consumption expenditures for medical care is almost $2 billion higher than the earlier total. Of that increase, $1 billion, or more than 50 percent, is the result of upward revisions in estimates for drugs and sundries expenditures; $600 million, or 31 percent, for dentists; and $200 million, or more than 10 percent, for ophthalmic products and orthopedic appliances. Drugs and other commodity categories in the medical care expenditure estimates together

This material was prepared by Lucy M. Kramer, research analyst in the Division of Public Health Methods, Public Health Service.

Personal consumption expenditures for medical care by type of product, current and old series, for selected years, 1929, 1933, 1948, 1950, 1952–57 [1]

Expenditures	1929 [2]	1933 [2]	1948	1950	1952	1953	1954	1955	1956	1957
	Amount (in millions of dollars)									
Total: Current series	$2, 937	$1, 983	$7, 749	$8, 741	$10, 172	$11, 072	$11, 925	$12, 827	$14, 048	$15, 051
Old series			*7, 385*	*8, 276*	*9, 397*	*10, 107*	*10, 603*	*11, 273*	*12, 106*	
Drug preparations and sundries	604	427	1, 466	1, 719	2, 058	2, 137	2, 163	2, 473	2, 869	3, 098
			1, 358	*1, 406*	*1, 569*	*1, 615*	*1, 631*	*1, 747*	*1, 885*	
Ophthalmic products and orthopedic appliances	131	92	431	486	580	604	595	685	814	873
			427	*479*	*561*	*577*	*566*	*572*	*612*	
Physicians	959	617	2, 327	2, 427	2, 657	2, 840	3, 109	3, 189	3, 470	3, 693
			2, 203	*2, 435*	*2, 676*	*2, 815*	*2, 913*	*3, 070*	*3, 269*	
Dentists	482	276	900	961	1, 098	1, 234	1, 406	1, 508	1, 625	1, 705
			833	*869*	*906*	*943*	*975*	*1, 017*	*1, 070*	
Other professional services	250	138	445	482	544	586	634	653	697	734
			423	*476*	*529*	*559*	*583*	*610*	*646*	
Privately controlled hospitals and sanitariums	403	363	1, 621	2, 037	2, 486	2, 729	2, 962	3, 229	3, 518	3, 884
			1, 591	*1, 975*	*2, 398*	*2, 635*	*2, 857*	*3, 123*	*3, 451*	
Medical care insurance and hospital insurance	108	70	559	629	749	942	1, 056	1, 090	1, 055	1, 064
			550	*636*	*758*	*963*	*1, 078*	*1, 134*	*1, 173*	

[1] Current figures in roman type; old series in italics. [2] Estimates unchanged prior to 1948.

SOURCES: Data for 1929 and 1933 and old series for 1948 and 1950 from U.S. Office of Business Economics: National Income, 1954 edition, A Supplement to the Survey of Current Business, table 30, pp. 206–207; old series

account for more than 60 percent of the increase in the total estimate for 1956. Medical care expenditures are 5.2 percent of all personal consumption expenditures in the revised series as compared with 4.5 percent in the old series.

The revisions are the result of new benchmarks and newly applied techniques for estimating personal consumption expenditures, and indicate changes in the distribution pattern of personal consumption expenditures. A detailed description of the technical aspects of the new series will appear in the Department of Commerce publication.

The revisions for commodity categories, such as drug preparations and sundries, and ophthalmic products and orthopedic appliances, are based on new Census of Manufactures and Census of Business benchmark material for 1954 and census survey data for 1950 and 1956, in place of the former preliminary extrapolations of the 1947 benchmark data.

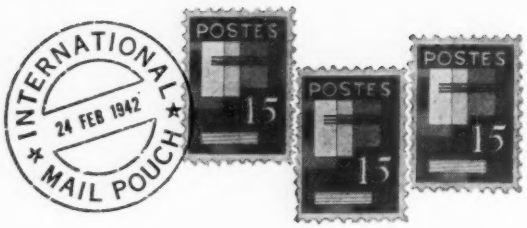
Service categories, such as physicians and dentists, are now based on current Internal Revenue Service data for gross receipts in tax returns for the period 1953–56, in place of extrapolations from earlier income figures.

Medical care as a percentage of the consumer dollar, that is, the dollar spent for goods and services, increased considerably between 1929 and 1957, but at an uneven rate. Reduction of economic activity in the depression years was reflected in a drop in the dollar volume of expenditures for medical care from $2.9 billion in 1929 to just under $2 billion in 1933, although the proportion of medical care to total personal consumption expenditures increased from 3.7 percent to 4.3 percent. From 1933 to 1948, the proportion vacillated between 4.0 and 4.3 percent, then began a steady rise. By 1957 medical care represented 5.3 percent of the consumer dollar, a rise to 140 percent of the 1929 ratio of 3.7 percent and the highest percentage on record.

Personal consumption expenditures for medical care by type of product, current and old series, for selected years, 1929, 1933, 1948, 1950, 1952–57 [1]—Continued

Expenditures	1929 [2]	1933 [2]	1948	1950	1952	1953	1954	1955	1956	1957
	Percentage distribution									
Total: Current series	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Old series	------	------	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	
Drug preparations and sundries	20.6	21.6	18.9	19.7	20.2	19.3	18.1	19.3	20.4	20.6
			18.4	*17.0*	*16.7*	*16.0*	*15.4*	*15.5*	*15.6*	
Ophthalmic products and orthopedic appliances	4.5	4.6	5.6	5.6	5.7	5.5	5.0	5.3	5.8	5.8
			5.8	*5.8*	*6.0*	*5.7*	*5.3*	*5.1*	*5.1*	
Physicians	32.6	31.1	30.0	27.8	26.1	25.7	26.1	24.9	24.7	24.5
			29.8	*29.4*	*28.5*	*27.9*	*27.5*	*27.2*	*27.0*	
Dentists	16.4	13.9	11.6	11.0	10.8	11.1	11.8	11.8	11.6	11.3
			11.3	*10.5*	*9.6*	*9.3*	*9.2*	*9.0*	*8.8*	
Other professional services	8.5	7.0	5.7	5.5	5.3	5.3	5.3	5.1	5.0	4.9
			5.7	*5.8*	*5.6*	*5.5*	*5.5*	*5.4*	*5.3*	
Privately controlled hospitals and sanitariums	13.7	18.3	20.9	23.3	24.4	24.6	24.8	25.2	25.0	25.8
			21.5	*23.9*	*25.5*	*26.1*	*26.9*	*27.7*	*28.5*	
Medical care insurance and hospital insurance	3.7	3.5	7.2	7.2	7.4	8.5	8.9	8.5	7.5	7.1
			7.4	*7.7*	*8.1*	*9.5*	*10.2*	*10.1*	*9.7*	

for 1952–56 from U.S. Office of Business Economics: Survey of Current Business, National Income Number, July 1957, table 30, p. 21. New series from U.S. Office of Business Economics: U.S. Income and Output, 1959, table II–4, pp. 150–151.



A Vessel for Chiloe

We are taking steps to obtain an 80-foot vessel to serve as a marine clinic for some 40,000 people who live on remote islands or inlets in Chiloe Province.

The province, 650 miles south of Santiago, Chile, has one of the country's highest general and infant death rates. About 25,000 of its inhabitants live in small towns on the mainland.

A doctor, a dentist, and sanitation aides use a 50-foot boat, purchased by the National Health Service 2 years ago, to visit some 15,000 others living in sheltered inlets or on nearby islands. But most of the people are receiving no care. Only a larger craft, with quarters for a crew and medical staff, can travel for several days through the rough seas and stormy weather of latitude 40° S. to reach these islands.

—G. HOWARD GOWEN, M.D., *chief public health adviser, U. S. Operations Mission, Chile.*

M.D.'s for Vietnam

Despite formidable handicaps, the medical school of the University of Saigon is training increasing numbers of the physicians Vietnam needs. The country has only 350 for its 12 million people; of these, 160 are in government service, 160 in military service, and 30 in private practice.

When Vietnam was partitioned in 1954, the mixed faculty of medicine and pharmacy moved from Hanoi, where its main physical plant was located, to Saigon. Classes were scattered to temporary quarters in 17 different locations in the city. Enrollment soared, reaching more than 500 students, too many for the school's permanent teaching faculty of 30.

Assistance from the U. S. Operations Mission has been concentrated on increasing the teaching staff and providing adequate physical facilities. Young faculty members receive fellowships to study abroad to prepare for teaching careers in medicine. Visiting professors from the United States come to Saigon to assist in developing understaffed departments. The Vietnam Government agreed to defer some young physicians from their obligatory military service immediately upon graduation so that they can accept fellowships, and when they are inducted later, to assign them, as their military duty, to teach at the medical school.

The 6-year curriculum was changed to allow for a regular internship in the 5th year and a rural internship at a provincial hospital in the 6th year. A contract to construct a Saigon medical center, with a basic science building and a teaching hospital, is being negotiated.

—CRAIG S. LICHTENWALNER, M.D., *public health physician, medical education project, U. S. Operations Mission, Vietnam.*

The Engineer

The water supply system of Manaus, Brazil, a city of 100,000 at the fork of the Amazon and Negro Rivers, has been under reconstruction under Serviço Especial Saúde Pública auspices for many years. Because funds for the work came from third parties, progress was irregular. Most of the money was spent on pumping and distribution facilities. Water treatment could not be started until distribution was widened, enabling the system to increase its rates and, consequently, its income.

However, 6 months after the city hired a competent engineer and gave him the authority to operate the system, water revenues tripled and they continue to increase. The system will soon be paying for itself.

—E. ROSS JENNEY, M.D., *chief, Health and Sanitation Division, U. S. Operations Mission, Brazil.*

Salt Monopoly

The Bank of the Republic, which holds the salt monopoly in Colombia, is contributing to food research. Bank officials in compliance with a decree will give one centavo from the sale of each pound of iodized salt manufactured and sold in Colombia to the National Institute of Nutrition. The institute will use the funds, which may total 3 million pesos annually, to improve the nutrition of the Colombian people.

—VERNON B. LINK, M.D., *director, Public Health Division, U. S. Operations Mission, Colombia.*

SUMMARIES OF SELECTED PAPERS
from the 86th annual meeting
of the
AMERICAN PUBLIC HEALTH ASSOCIATION
and related organizations
held at St. Louis, Mo.
October 27–31, 1958

Consolidation for Strength

Public health agencies in defining public health criteria and procedures are not keeping pace with the new developments. Thus, there is an increasing tendency toward splintering public health responsibility and authority and the dispersion of essential services to various existing or newly created agencies. If this trend continues it will undermine the influence of professional public health leaders and destroy the unity of health programs necessary to effectiveness. In order to meet this basic challenge, the public health profession needs to augment its strength as a whole with emphasis on particular areas of activity. In my judgment, it is essential that we restudy the strategic position of public health and shape our programs to increase their influence on public policy and counteract the trend toward scattering responsibility. . . .

In many cases in the past support and protection for health programs have been obtained largely by personal and emotional appeals. For example, the people have faith in the health officer as an individual and move to his aid when he needs the pressure of public opinion. Such emotional appeals are uncertain of results and likely to be transitory in their effect. We must develop on a sound scientific basis continuing programs of public relations and health education that will be effective in advancing health services on their own merits.

ROY J. MORTON, C.E.
President, American Public Health Association
From the presidential address, October 28, 1958

The APHA *Conference Report*

With the assistance and cooperation of the authors, the staff of *Public Health Reports* has summarized some 90 papers presented at the 86th annual meeting of the American Public Health Association and related organizations held in St. Louis, Mo., on October 27–31, 1958.

Summaries were selected for publication in the following pages to present in one volume a representative body of facts and ideas discussed at the conference. Omitted from these selections were papers scheduled for early publication in the *American Journal of Public Health*, papers whose authors provided no copies for the press, and certain others which for one reason or another were not suited to summarization.

A few papers omitted from this selection are under consideration for publication in full in subsequent issues of *Public Health Reports*.

Edge of the Future . . .

Prefers "Dispersal" To Urban "Sprawl"

In considering some of the effects of urban expansion on housing and community growth, Dr. Coleman Woodbury, director of urban research at the University of Wisconsin, pointed out that urban sprawl is a loaded term. Who, he asked, could possibly find any merit in a phenomenon labeled "sprawl," a term redolent of clumsiness, immaturity, and ridiculousness?

Whatever the conceptual differences between sprawl and dispersal, the characteristics of current urban growth in all parts of America are the same, and involve, he observed, the more or less planless extension of urban building on and on into the countryside with little or no attention to community facilities and services, topography, future transit and transport problems, and so on.

Characteristics

Woodbury cited estimates of the U.S. Bureau of the Census which reveal that 95 percent of the population increase in the United States from 1950 to 1956 occurred in the 168 standard metropolitan areas and urban areas in their vicinities; the metropolitan areas, excluding urban areas in their vicinities, accounted for 85 percent of the population growth. Furthermore, he said, if we accept the fact that a large proportion of nonurban metropolitan areas are urban in employment, orientation, and ways of life, then national population growth is almost entirely urban.

Woodbury broke metropolitan areas into three subareas: central cities, suburbs, and rural-urban fringes. Increases in population during 1950–56 for these three subareas were 15.6, 27.2, and 41.5 percent, respectively. In other words, he said, over a recent 6-year period, more than two-thirds (68.7 percent) of the national increase went into population areas outside their central cities, and more than two-fifths into metropolitan areas outside of both central cities and suburbs.

Nearly all of the rural-urban fringes and many of the suburbs, Woodbury averred, are poorly prepared in governmental structure and finances, customs and traditions, civic organization, and even in prevailing attitudes to take care of this flood of in-migrants and their needs.

Another characteristic of urban dispersal, Woodbury observed, is the concentration in central cities of poor newcomers unskilled in urban vocations and living. More and more suburbs, he said, are now in the middle and lower middle income ranges, and the old image of the suburbs as predominantly bedroom towns of the wealthy and well-to-do is no longer valid.

Problems

Woodbury identified seven problems that urban growth and dispersal are forcing on the attention of those concerned with the future of housing and local community development.

- The concentration of low income in-migrants in central cities and the relative decrease and slower growth of some economic activities there result in a relative reduction in per capita tax-paying capacity in central cities. At the same time, there is a greater need for more services and expenditures for health protection, housing, recreation, police, welfare services, and schools in central cities.
- In many large and growing

suburbs and rural-urban fringe areas, an absence of adequate building code standards means that the slums of the future are being built now.

• About 27 percent of the annual housing output has been constructed by do-it-yourself builders. Most of this building is the poor man's response to high construction costs. However much these efforts stir one's admiration, it must be admitted that they now add appreciably to the difficulties of assuring proper standards of design, location, and construction. They present a difficult and delicate problem that has been largely neglected.

• Local taxes and debt have increased phenomenally. Taxes in suburbs and fringe areas are now commonly as high as or higher than the tax rates in central cities or large suburbs with full complements of public facilities and services. The outstanding local government debt increased 107 percent for 1950–57.

• In suburban and fringe localities, tax bases are markedly disparate. Some local government units must tax according to a property tax base consisting almost entirely of modest housing, while across a boundary line another government unit is profiting from a major shopping center or industrial plant. Very little benefit accrues to the former government units from the proximity of shopping centers or industrial plants. This result is a direct consequence of the "Balkanization" of local governments in metropolitan areas. In 1957, the 174 standard metropolitan areas (6 were added since 1950) had 15,658 units of local government, an average of 90 per metropolitan area.

• Plans have been inadequate for the development of parks, playgrounds, forest or wildlife preserves, public beaches, and libraries. Land has not been reserved for these uses at a time when one of the principal forces contributing to urban dispersal is the increase and wider distribution of leisure time.

• The landscape has been butchered by bulldozer, chain saw, shortsightedness, inexperience, public apathy, and commercial cupidity.

Warnings

Woodbury added three warnings as guides in the consideration of these matters. Dispersal, he said, is not the cause of growth problems. It is an active factor, but more pertinent are our antiquated systems of local government finance, the irrational hit-or-miss character of governmental structures in metropolitan areas, high construction costs, neglect of ways and means to facilitate the education of in-migrants in the difficult processes and manners of urban living, and the common neglect and downgrading of local public issues, he declared.

The faults of current urban dispersal, Woodbury said, are not inherent in the process itself, but arise from the planless, shortsighted, stupid ways in which much of it is carried on. The tragedy, he commented, is that most migrants to the suburbs are realizing only a part of the gains they might make and at costs many of which either are not necessary or are unnecessarily high.

But the alternative is not, as some advocate, relatively high-density, largely apartment-type development, he said, adding that this would be a 19th century solution and inappropriate to our times.

Microbes Wed to Wastes By Selective Process

Almost every water pollutant can be degraded by one form of microbe or another, but selecting the right microbe is not an easy matter, declared Dr. Paul W. Kabler, chief of microbiology, Robert A. Taft Sanitary Engineering Center, Public Health Service.

Selection, he said, takes place by fortuitous matching of potentially competent micro-organisms with appropriate waste materials. Further adaptations are accomplished by producing necessary new enzymes either through activation of latent characteristics or through genetic changes that arise spontaneously or by stimulation from environmental factors.

Kabler pointed out that the new industrial wastes joining soil or aqueous environments are confronting organisms with chemical entities in concentrations and under conditions not previously known. With some of the newer organics, Kabler said, selection of the proper organism has not yet been completely successful, but there appears to be no reason why suitable organisms should not be found if the search is sufficiently diligent.

Artificial and natural purification, Kabler observed, are accomplished by the combined metabolic activities of a number of species and variants selected and adapted from an infinite number of micro-organisms and micro-environments existing in nature. Adaptation, he explained, is a function of the microbes' ubiquity and the activity of those best suited to a given environment; those less suited lie dormant waiting for the right environment.

Enzymatic adaptations, he said, are not usually retained by an organism when the compound is removed from its environment, and the transfer of adaptive qualities in one generation to the next does not involve changes in the genetic pattern. Each cell has the genetic ability to produce the enzyme but does so only when the stimulating material is present. The elaboration of an enzyme when it is useful and the ability to grow without it when it is of no value appear to be the basis for much of the on-the-spot adaptation of microbes, Kabler averred.

Radar and Rocket Fuel Pose Few Hazards

The biological effects of microwave energy emanating from radar sets and the toxic effects of rocket fuels were discussed in the context of oc-

cupational health by Colonel George M. Knauf, surgeon at the Air Force Missile Test Center, Patrick Air Force Base, Fla.

So far, he said, all evidence suggests that any detrimental effects are thermal and occur only at certain intensities and frequencies. Power produced by present equipment does not attain the maximum safe exposure level of 0.01 w./cm.^{2} beyond 500 feet from the point of origin. It therefore poses no threat to residents in the vicinity of radar sites. And common sense precautions preclude injurious exposure in operating and maintenance personnel, Knauf said.

Research, Knauf reported, has revealed the following facts about the effects of microwave energy:

1. Few biological injuries have been observed from exposure to this energy above 3,000 megacycles.

2. The crystalline lens of the eye is the tissue most sensitive to microwave energy; exposure can result in opacities of the lens. But such opacities have not been observed with exposure to power levels below 0.12 w./cm.^{2} regardless of the length of exposure.

3. Some evidence of an accumulative effect has been found.

4. Some evidence exists of an electrical effect on nerve impulse propagation by exposure to extremely high frequency energy. (This may be of value in diagnosis and treatment of selected neuromuscular diseases.)

5. Certain tissues, such as red bone marrow, are heated by microwave energy. (This, too, may be of therapeutic interest.)

The principal concern of industrial medicine with regard to rocket fuels, Knauf pointed out, is the fact that chemicals formerly used in reagent-bottle quantities are now being used in tank-car quantities. Moreover, he said, ordinary drivers of refueling trucks are handling enormous quantities of extremely potent chemicals, whereas trained laboratory personnel, oriented to the hazards of these chemicals, formerly handled them.

Aeromedics Paving Way For Safe Space Flight

Television in a spaceship might be the answer to the debilitating effects of monotony on the pilot, observed Major Stanley C. White, flight surgeon, and Captain Charles L. Wilson, aeromedical examiner and research physician, in their discussion of the physiological problems of space flight before the American College of Preventive Medicine session.

White and Wilson are in the Aero Medical Laboratory at the Wright-Patterson Air Force Base in Ohio.

Overcoming monotony is just one problem facing the physician, whose main concern, along with the engineer's, is getting the pilot safely back home, White and Wilson said.

Other conditions posing questions for the medical profession are:

- Thermal dangers when spaceships leave and re-enter the earth's atmosphere.
- The necessity of reconditioning exhaled gases within the sealed cabin of the space vehicle.
- Gaseous swelling of tissues unless adequate pressure is applied to the pilot's body in the cabin.
- Sudden decompression in the cabin's artificial atmosphere which would explode the pilot's body into the vacuum.
- Oxygen toxicity or hypoxia if the oxygen supply is too much or too little.
- Stress of rapid accelerations, reaching 8 *g* and maintained for 200–250 seconds. This accelerative force is equivalent to putting a 50-pound weight on the chest and 100-pound weights on the extremities, leaving only the fingers free to move.
- Psychological and physiological hazards associated with weightlessness, which occur when the earth's gravitational pull no longer prevails.
- Radiation belts around the earth which must be penetrated without danger to the pilot if the mission is to succeed.

Some of these problems have already been solved, White and Wilson said. A pressurized suit worn by the pilot avoids the hazards of decompression and inadequate pressure. These suits have an emergency system that automatically responds to the loss of atmosphere in the cabin and inflates the suit in a split second.

Stresses of rapid acceleration are overcome by breathing with the stomach, lying in a position with head and feet slightly elevated, and controlling instruments through digital manipulation alone, they said.

White and Wilson also said that chemicals such as lithium hydroxide recondition exhaled gases by combining with both carbon dioxide and water vapor.

Solutions to the hazards of radiation in space and of weightlessness are still being sought, they concluded.

Synthetic Resins Aid Health Techniques

Advances in techniques of health services by use of synthetic resins, described by L. J. Francisco of the American Cyanamid Company, include disposable syringes, tubing for catheters, and microscope slides and covers.

In heart and vascular surgery synthetics replace parts of veins, arteries, and valves and have been more successful than tissues grafted from another person.

At the Jewish Hospital of Denver, Francisco said, polyethylene foam is used to fill the chest cavity of a patient whose lung has been collapsed.

In food-processing plants, commonly built of unfinished concrete blocks, resin is sprayed inside the building to check the growth of bacteria. In fluid form, it penetrates, fills, and smooths the rough and porous surface.

Chemicals that are characteristically inert are more suitable for packaging and at the same time least likely to be toxic, Francisco stated.

Beginning with the LD_{50} test on rats for toxicity of ingested chemicals, the toxicological laboratory of the company screens all products for hazards. To measure irritability to the skin and eyes, a single large dose is applied to the skin of a rabbit and kept in contact for 24 hours, and a small amount is dropped in a rabbit's eye. Liquid products are vaporized, and test animals are exposed to controlled concentrations until systemic toxicity appears. As indicators of effects of chronic exposure, rats experience the vapors for periods up to 8 hours. The laboratory also conducts a routine test of subacute toxicity by adding controlled amounts of the product to the food of animals for 30 days.

If the product is a solid there is likely to be little or no vapor. Skin and eye data indicate the possibility of toxicity on contact. If handling of a product creates dust, workmen can be protected from inhaling toxic amounts by safety gear.

Mental Health and Alcoholism . . .

AMA Action on Alcoholism Reported by Dr. Block

The family physician is in a unique position to find cases of alcoholism and to prevent its more serious sequelae, but he must first be informed of his responsibilities, observed Dr. Marvin A. Block, chairman of the committee on alcoholism of the American Medical Association.

Block recounted the history of the AMA's efforts in calling the attention of the Nation's physicians to the health problems of alcoholism, transferring the disease thereby from a social to a medical priority.

He recalled the early efforts of an eminent physician in Erie County, N.Y., who, in 1948, having observed the successes of Alcoholics Anonymous, placed the problem of alcoholism within the province of medicine. A medical committee was formed under his instigation to stimulate the interest of physicians, and he helped create a citizens committee whose purpose was to educate the public about alcoholism as a medical disease, and the possibilities of treatment and rehabilitation. Block said.

Summit Action

In 1950, this physician, seeking concerted national action by his fellow physicians, brought his ideas before the AMA House of Delegates, which passed a resolution establishing a committee on alcoholism within the commission on chronic illness. The following year, Block said, a committee on the problems of alcoholism was appointed as a subcommittee of the chronic disease committee, but no appropriations were passed, with the result that the subcommittee never met.

In 1952, a year after the subcommittee had been appointed, its members were informed that the subcommittee had been disbanded. The subcommittee, Block said, promptly asked for the appointment of a new committeee and an appropriation of funds.

Sequel Recounted

During this time, Block said, the lay committee on education on alcoholism was functioning very well; it had become affiliated with the National Committee on Alcoholism, and, as a result of its actions, a rehabilitation center for alcoholics was established by the University of Buffalo Medical School.

In 1953, the executive secretary of the AMA committee on mental health was invited to visit the medical school's facilities and to discuss the possibility of forming a subcommittee on alcoholism. The upshot was the creation of a subcommittee under the committee on mental health, and sufficient funds were allocated for its operations.

In 1955, the committee on mental health was raised to the status of council, and the subcommittee on alcoholism was raised to the status of a full committee.

Results Enumerated

What have been the committee's accomplishments? Block summarized a number of them:

- Two well-received exhibits were built. They are available for AMA conventions and for meetings of all State and county medical societies that request them.
- Interest in alcoholism has been stimulated in the State medical societies. Whereas few State medical societies had committees working on the problem before the committee on alcoholism was formed, 37 States now have such committees.
- In 1956, four articles, written by members of the committee, appeared in the *Journal of the American Medical Association* on the medical, psychiatric, physiological, and sociological aspects of alcoholism. In 1957 the articles were bound with additional information and issued as a manual for the use of general practitioners.
- At the request of the committee, the AMA purchased a complete set of the Abstract Archives of the Alcohol Literature, which has enabled the committee to answer a flood of queries on the subject.
- In 1956, the AMA House of Delegates passed a resolution, submitted by the committee on alcoholism, urging all general hospitals throughout the country to admit alcoholic patients to their general medical floors. This represented a tremendous victory, Block said, for it meant that "the largest medical organization in the world had now recognized alcoholism as a disease which warrants admission to general hospitals for those people suffering from it."
- In 1957, the committee produced a directory of rehabilitation resources, listed by States, and

available from the AMA national headquarters.

• Two surveys were initiated in 1958, one on teaching about alcoholism in medical schools and the other on the laws relating to alcoholism in the States. Eventually, the committee hopes to formulate a uniform law applying to the handling and disposition of alcoholics, Block said.

• The committee hopes to induce Blue Cross to pay hospital benefits for alcoholics.

• Other activities have been promoted in the last 4 years to educate the medical profession on alcoholism. This has included conferences and institutes. Each institute consists of five speakers, members of the committee on alcoholism, who deliver lectures on the medical, psychiatric, physiological, and sociological aspects of alcoholism. It is a half-day's program which is presented only on the invitation of a State medical society. All expenses for these institutes are borne by the American Medical Association.

Block concluded by pointing out that the individual physician can no longer avoid the issue of alcoholism as a medical responsibility. He must treat patients who have become problem drinkers, and he must, here as in other diseases, seek to prevent alcoholism, for the answer to this problem, Block said, lies in prevention rather than therapy.

Preventive Medicine Helps Mental Cases

Reorganization of Ohio's mental health program to accent public health and preventive medical services was described by Dr. John D. Porterfield, Deputy Surgeon General of the Public Health Service.

The first step in the reorganization, Porterfield said, was to establish a public health unit within the office of the director. The unit was then staffed with a sanitarian, a nutritionist, and a physician who was trained in chest diseases, particularly tuberculosis.

The physician was named health officer of the department and given two major functions: first, to serve as consultant specialist in preventive medicine to all institutions, and second, to give particular attention to the extensive problem of tuberculosis in the mental institutions, Porterfield said.

The nutritionist, he said, had a full-time job of seeing that the inmates were fed properly within stringent budget limitations, that the food was aesthetically wholesome, and that the food would give the most mileage to the penny, reducing at the same time the garbage disposal problems.

To effect economies in the organization and procedures of the statewide food service operation, the nutritionist established a central kitchen in which recipes and menus were pretested for their adaptability in 100-portion lots, Porterfield said. This step permitted purchasing in bulk many items previously bought by each institution in small quantities, with concomitant savings. The central kitchen, Porterfield observed, also served as an excellent training facility for food-service personnel.

By devices such as this, he said, the nutritionist earned her annual salary almost monthly in both food savings and food-service improvements.

The problems of the sanitarian ramified from the agricultural occupations of the inmates. A long-range program was begun to improve abattoirs and meat-processing facilities, milk production and processing, and canning of food crops so that they would prove "an asset rather than a threat to the patient," Porterfield commented. The sanitarian also had the monumental task of attempting to provide adequate washing and toilet facilities for the huge population residing in antiquated buildings.

Developing screening mechanisms to uncover early signs of chronic degenerative disease in the inmates was considered by Porterfield to be a rare opportunity. Not only did it mean improving their physical health and prognosis, he said, but it also meant improving their psychiatric prognosis.

Asks More Illumination On Intoxication

Twice as many drinkers as nondrinkers were involved in fatal automobile accidents in California, an analysis of traffic accidents in 1955 revealed. Investigations of a finding such as this, declared Dr. Wendell R. Lipscomb, division of alcoholic rehabilitation, California State Department of Public Health, are sorely needed.

The discouraging thing about the personal consumption of alcoholic beverages in this country, he said, is how little is known about it. Citing the need to know the who, how, when, and where about the use of distilled beverages, Lipscomb suggested several sources of epidemiological data. The purpose of collecting the data, he pointed out, is to help identify the problem drinker so that the basis for sound interventive and preventive measures may be established.

No single average drawn for the country as a whole can meaningfully dictate the proportion of drinkers in any particular city, he observed, adding that to obtain the proper information, one must study the distribution of alcoholic beverages and then investigate each community. The pattern of drinking may then be related to data on mortality and morbidity.

Sources for Data

However difficult it may be to compare one area with another because records and definitions of alcoholism vary from place to place, within any given community there is a surprising consensus as to what constitutes an arrest for drunkenness, or a crime or traffic accident that is related to the use of alcohol, Lipscomb averred.

Other sources of data, Lipscomb

said, are records of mental hospitals that admit and treat alcoholics. These records, he commented, contain data on the social, economic, and psychological background of problem drinkers.

Equally useful, he said, are the records on unemployment-disability compensation. What brings individuals to claim disability, the types of illnesses or injuries for which such disability is claimed, the repetitiveness and the length of such claimed disabilities are all useful clues in the search for the manner in which alcoholism takes its social, clinical, and economic toll. In 1953, Lipscomb said, California found that disabilities associated with the use of alcoholic beverages were the recorded cause of 1 percent of all claims paid, and that, for men, these claims almost equaled the number paid for malignant neoplasms. Alcoholism represented well over two-thirds of the total alcohol-associated disability claims paid.

Each State, Lipscomb observed, has an industrial accident commission with a large data-collection machinery, which includes judgments on individuals injured on or off the job. These judgments frequently follow medical consultation and advice and are, therefore, another rewarding source.

Lipscomb also referred to the advantages that would accrue from a thorough study of mortality and morbidity data, not merely for the unique populations of mental hospitals, skid rows, and prison farms, but for the population as a whole, to determine the influence of alcohol on survival and illness. He also considered the rosters of social welfare agencies as a rich source of information on the effects of intemperate drinking.

Epidemiology

In California, Lipscomb said, the focus of the State health department has been on the accumulation of as many measurable clinical and behavioral resource units related to drinking practices as possible. From this accumulation it has attempted to obtain a composite description of the group characteristics of drinkers.

Not all persons falling into these units (for example, divorce, penal records, and drunk arrests) are problem drinkers, he said, and it is not enough for the epidemiologist simply to gather descriptive data. In the epidemiology of alcoholism, Lipscomb said, it is vital to order and use these measurements as chronological markers in the development of problem drinking, to validate current etiological studies, and to predict those groups at increased risk of developing alcoholism.

Puts Control of Alcoholics Up to Health Agencies

It is the ultimate objective of the State department of public health to make treatment of alcoholic patients a part of general medical practice within each community, and the control and prevention of alcoholism a part of community health services.

Dr. John R. Philp, chief of the division of alcoholic rehabilitation, California State Department of Public Health, made this point in an historical discussion of California's activities in alcoholism.

According to Philp, California's concern with alcoholism dates back to 1870 when the board of public health was first established. The board at that time was instructed to examine the effect of intoxicating beverages upon the citizens of the State.

In 1937, California provided for the hospitalization in mental hospitals of dipsomaniacs, inebriates, and addicts to stimulants. It was quickly demonstrated that, at most, those committed represented a tiny portion of the alcoholics needing treatment, although alcoholics entering mental hospitals soon comprised one-fifth of all admissions, Philp said.

Following a study of drunkenness in San Francisco in 1948, the first treatment clinic for alcoholism in California was established: the San Francisco Adult Guidance Center in the health department of the city and county. Another clinic was established the following year in the Alameda County Rehabilitation Farm at Santa Rita, Philp commented.

In 1949, Philp recounted, the Governor's Conference on Mental Health devoted a section to alcoholism and recommended the designation of an agency to carry out the responsibilities of the State in this regard.

Thus, in 1954, after further study, the California State Alcoholic Commission was established by the legislature to deal with all phases of the treatment and rehabilitation of alcoholics. With a budget reaching $700,000 annually, the program included research, treatment, rehabilitation, and public information and education. Six pilot clinics for the rehabilitation of alcoholics were created during the commission's life, in addition to a program in two private nonprofit hospitals to demonstrate the advisability and feasibility of hospitalizing the acute alcoholic as a part of the hospital's general medical service. Pamphlets, documents, and newsletters were published by the commission, and its grants supported research and the San Francisco Adult Guidance Center, Philp said.

In 1957, the commission was abolished by the legislature, and its program, budget, and civil service staff were transferred to the State department of public health. The department was charged with the responsibility of engaging in the treatment and rehabilitation of alcoholics and in the reduction and prevention of alcoholism. A division of alcoholic rehabilitation was created within the department to undertake these duties.

Since 1957, Philp said, the new division has been administering, with minor modifications and adjustments, the program inherited from the commission. At the same time, he pointed out, it has been developing a long-range plan for consideration by the legislature.

Prepayment Plans . . .

Home Nursing Care Given Subscribers in New York

A 5-year experiment in New York City indicates that provision of home nursing service, following hospitalization, as a health insurance benefit is feasible, reported Maria Phaneuf, nurse coordinator, Associated Hospital Service of New York. Her organization, New York's Blue Cross plan, conducted the study in cooperation with 4 hospitals and 5 visiting nurse associations.

In addition to promoting the well-being of the patients, the first objective of the experiment, provision of the nursing service reduced costs of illness by shortening hospital stays, Phaneuf stated.

For the first 500 patients receiving the service, hospital stays were shortened by 7,948 days, according to the physicians' estimates, even though the average stay was 27 days. This reduction, she emphasized, meant an estimated saving of $152,000 after payment of $25,000 for the home nursing service. About half the saving accrued to Blue Cross and the other half to the patients.

The reduction in length of hospital stays also meant the release of hospital facilities. Phaneuf determined that 700 patients could have been hospitalized for average stays of 11 days in beds not needed by the 500 patients. Assuming an 80 percent occupancy, 26 hospital beds were made available through use of home nursing service, she added.

About three-fourths of the 500 patients were under private medical supervision, and about the same proportion were 45 years old or older. Nearly two-thirds suffered from one or more long-term illnesses.

The home nursing service was an elective alternative to further in-hospital care, Phaneuf explained. Moreover, use of home service in no way altered the amount of in-hospital service available to each subscriber in his contract with Blue Cross.

Discussing organization of the program, Phaneuf called it "an experiment in cooperation between voluntary hospitals, visiting nurse agencies, and Blue Cross for better service to the patients and the community." Written agreements between the participating organizations outlined responsibilities.

The visiting nurse agencies were paid by the hospitals at the agencies' community rates, and Blue Cross reimbursed the hospitals.

Now authorized by New York State law to provide care only in or through hospitals, Blue Cross has requested an amendment to permit payment for home care, including nursing service, appliances, drugs, medicines, supplies, and ambulance service, Phaneuf concluded.

Syracuse's Approach

In Syracuse, N.Y., the Visiting Nurse Association is focusing its attention on major medical insurance, which some of its patients now carry, announced Mabel F. Chrystie, executive director of the association.

Patients of the VNA with major medical insurance numbered 14 in 1957 and 28 during the first half of 1958, Chrystie said.

At present, the Syracuse VNA is participating in a local unit set up "to develop mutual understanding between the insurance companies, the industries insured, and those who provide the services covered." In addition, the following steps have been taken, the nurse reported:

1. Space added to the family service record for recording information about major medical insurance.

2. A card file set up for information about each plant or company insured (including a copy of each insurance manual) and about the local offices of the insurance carriers.

3. A card file developed for recording experience of individual patients.

4. A special billing form devised for use by patients in obtaining insurance reimbursements.

Considering the phenomenal growth of prepayment plans to date, the enormous potential for group coverage in Syracuse, and the increasing emphasis on home care, we expect major medical insurance to be a source of income for the VNA, Chrystie declared.

Six Hospitalization Plans Cover Nursing Home Care

At least six Blue Cross plans are providing coverage for nursing home care, stated Agnes W. Brewster, medical economist with the Social Security Administration.

Describing briefly the nursing home benefits offered, she noted that each plan has at least one of the following limitations:

1. Contracts are offered only to groups, which excludes most retired and elderly persons.

2. Beneficiaries must be discharged from a hospital directly to a nursing home, a provision which tends to confine cases to certain diagnoses.

3. A limit on benefit days during a lifetime.

4. A co-insurance provision, with the patient paying 20 percent of the nursing home charges.

Brewster indicated also that no completely satisfactory scheme has been worked out for determining what are acceptable institutions for the beneficiaries.

Concluding with statistics on use of nursing homes, she reported that under the Philadelphia Plan, which limits benefits to 30 days in a lifetime, the number of nursing home cases has amounted to only one-half of 1 percent of all cases since 1951. The cost per day of nursing home care was a little more than half the cost of a day of hospital care, she said.

Under the Delaware Plan, where

discharge from a hospital must precede nursing home care, Brewster added, nursing home cases have amounted to about one-fifth of 1 percent of all cases and one-half of 1 percent of all days of care. The average stay in the nursing home has been about 30 days, and the cost per day about the allowed amount of $8.

Prepaid Prescription Plan Organized in Ontario

A voluntary prepayment plan for prescription medicine has been organized in Canada by W. A. Wilkinson, a pharmacist and president of Prescription Services, Inc., a private, nonprofit body in Windsor, Ontario.

Started in January 1958, with March 1 the first effective date, the plan has grown from 65 subscriber families for the first month to 244 for the fifth. Although financial success is not yet assured, Wilkinson cited two trends which he believes indicate that such a plan is feasible:

- A plateau for prescription price seems to have been reached.
- A plateau of use seems to be in the offing.

Average prescription price times use rate will establish a premium, and if this premium can be kept within reason, we can produce a popular policy, he declared.

The average prescription price, Wilkinson said, seems to have leveled off at about $3.50 per month. The monthly use rate has dropped from 0.655 to 0.386, and he expected it to level off at about 0.250.

Now serving Essex County in Ontario, the plan, if successful, will be extended to the rest of the Province, according to Wilkinson. Seventy-five pharmacies, 64 in the Windsor area, are currently members. As a condition for membership a pharmacy must lend the corporation $150, repayable in 10 years without interest. Subscriber membership is available only through groups, with 75 percent of a group participating.

A major problem, Wilkinson admitted, has been selling the service to eligible groups. The invalid have clamored to join, because pre-existing conditions are not excluded, but many well people, never having spent much for medicine, have felt they would not benefit. Employees have tended to look to their union to obtain the service for them, and management has frankly opposed giving another "fringe benefit," he pointed out.

On the brighter side, Wilkinson reported little evidence of cheating by patients. Abuses can be spotted, he said, by examining the pharmacists' charge cards, and a warning that the service will be canceled helps to stop them.

The service covers only drugs prescribed by physicians and dispensed by a member pharmacy. For various reasons, medicine dispensed or administered by physicians, medicine prescribed by dentists, insulin and diabetic supplies, vitamins (except those designated "therapeutic vitamins"), and parenterally administered drugs are not covered, Wilkinson stated.

Psychiatric Care Included In Labor Health Plan

A psychiatric program has been operating successfully since 1946 in the St. Louis Labor Health Institute, a group practice prepaid medical care plan serving some 15,000 union members and their families, according to Dr. Louis L. Tureen, one of three psychiatrists working part time for the institute.

As a member of the plan's medical team, the psychiatrist acts both as a consultant to the medical staff and as therapist to individual patients, Tureen reported. About half the patients referred to the psychiatric service for diagnostic appraisal, he pointed out, are returned to the referring physician for continued medical care.

Treatment, geared to the medical needs of the patients, but necessarily limited by the economic framework of the organization, includes supportive therapy, suppressive therapy, and dynamic psychotherapy, the psychiatrist said. The first two types are predominant, primarily because of the limited psychiatric time available (20 hours a week), he indicated.

Tureen explained that supportive therapy, frequently accomplished in 1 or 2 interviews, emphasizes relief of distress and anxieties. He described the aim of suppressive therapy as "amelioration of symptoms," rather than resolution of conflicts. Sedatives, inhalation of carbon dioxide, and even electroconvulsive treatment are used in addition to interviews.

Interview periods average 25 to 30 minutes. However, Tureen emphasized, to make the most effective use of the time available, a "chronic supportive case" may be given only 10 to 20 minutes while a patient with a good many personality assets is allotted 40 or 45 minutes.

Only a few patients are hospitalized, he reported, although the plan allows up to 30 days' hospitalization for psychiatric patients.

From an analysis of the case histories of 471 patients selected at random during an 8-year period, Tureen concluded that "3 to 10 visits is the most fruitful and economically feasible program" for the St. Louis Labor Health Institute. Of the patients making 1 or 2 visits (40 percent), only about 20 percent showed improvement, whereas for those making 3 or more visits, the proportion was 75 percent. (Only a few made more than 10 visits.)

He also concluded that psychosomatic disorders (which affected 89 of 320 nonpsychotic patients) are best suited to the "brief superficial therapy" possible in the psychiatric facilities of LHI.

Other classifications for the nonpsychotic patients were psychoneurotic reactions (181 patients) and personality disorders (50 patients). In addition, among the 471 patients there were 90 with neurological problems, 49 classed as psychotic,

and 6 found free of neuropsychiatric disorders.

For the immediate future, Tureen sees an urgent need for the addition of a social worker to the psychiatric service, as well as increased psychiatric staff. He also recommended adding to the regular staff a psychologist who was employed periodically on a fee basis.

Dual Choice Programs Developed in California

A choice between the traditional fee-for-service type of health insurance and a group practice prepayment plan is offered beneficiaries of health and welfare funds by 53 industrial and occupational groups in the San Francisco Bay area, according to Avram Yedidia, consultant to the Kaiser Foundation Health Plan, Oakland, Calif.

Development of such dual choice programs, Yedidia declared, has permitted the Kaiser plan, a group practice plan, to provide medical care to employees covered by health and welfare funds without departing from its principle of voluntary enrollment. The fee-for-service plans in dual choice programs are provided by commercial insurance companies, Blue Cross, or Blue Shield (Blue Cross and Blue Shield are competing organizations in California).

Originally set up for employees of the Kaiser companies, the Kaiser Foundation Health Plan was opened to other groups and individuals at the end of World War II, with voluntary enrollment as a basic concept.

Analysis of Kaiser plan hospital utilization rates for 1957 for dual choice groups indicates that the rates are directly related to age, as are the rates for the total membership of the plan, Yedidia said. He concluded that "the mechanism of dual choice does not appear to result in favorable risks selecting one plan and unfavorable risks selecting the other."

Yedidia noted, however, that special circumstances in a group may produce substantially different types of enrollment in the two types of plans. He pointed out also that when dual choice is introduced to a group which already has a prepayment plan, the existing plan has the decided advantage, at least as far as numbers are concerned. Furthermore, few individuals shift from one plan to the other, although the opportunity once each year to change is a feature of the dual choice programs.

Migrant Worker Contracts Include Health Insurance

Nonoccupational health insurance is provided for certain agricultural migrant workers in this country, at the workers' expense. Helen L. Johnston of the Public Health Service described this development in health insurance, which she said is unique in three respects: the character of the groups insured, the auspices under which the insurance is arranged, and the arrangements themselves.

Three groups of migrants are receiving the benefit: Puerto Ricans who come to the mainland under an organized program, British West Indians, and Mexicans. All are single males carefully screened for physical defects and employed under work agreements or contracts, Johnston stated.

For each group, a governmental organization has some responsibility for insurance arrangements. The organization may play an active part in planning the program in addition to selecting the insurance carrier (Puerto Ricans and British West Indians), actually administer the program (British West Indians), or prepare a list of approved insurance companies (Mexicans).

Arrangements for premium collection are essentially the same for each group of workers, according to Johnston. Premium payments are deducted from the worker's wage by the employer, who sends a single check for all his employees directly to the insurance carrier or to the responsible government agency. The insurance covers only the period of employment. Claims are sent to the same agency as the premiums.

The program for the Mexicans, conducted under an international agreement between Mexico and the United States, differs in one important respect from the other two, Johnston pointed out. For this group, each employer arranges for the insurance with a company selected from among those on a list prepared by the U.S. Department of Labor. For the other two, the insurance carrier is selected by the government agency on the basis of bids submitted each year.

District Dentists Devise Group Service Plan

The District of Columbia Dental Society has established a nonprofit corporation to administer group dental care plans, announced Dr. Steven O. Beebe, chairman of the economics committee of the society.

The corporation is expected to be in operation soon. At present, the District of Columbia, Maryland, and Virginia Boards of Dental Examiners are investigating, at the request of the dental society, the corporation's legality with respect to the dental practice acts.

Steps completed include development of a tentative fee schedule and an estimate of dental needs in a representative group, Beebe reported. These can serve as a basis for estimating service costs, although final determination of the premium must await accumulation of actual experience.

The tentative schedule of fees is based on findings of a survey among dental society members to ascertain their charges for basic treatments. For the estimate of dental needs, one-fifth of the members of an in-

terested union were given complete dental examinations, including full-mouth X-rays, prophylaxis, and clinical examination.

Assuming inclusion of service for all accumulated dental needs in the first year's contract and 100 percent utilization, it is estimated on the basis of the surveys that the first year's premium would vary from $60 for a plan limited to examination, prophylaxis, X-rays, fillings, and extractions to $300 for comprehensive coverage, Beebe said. However, he added, the survey of treatment needs suggests a utilization rate nearer 50 percent, which would halve the per capita premium.

So far, the scope of a specific dental care plan has not been discussed with any consumer group. Nor has a final fee schedule been presented to participating dentists or a prospective group purchaser.

Any plan the corporation sponsors will be an open panel plan, with all interested dentists participating, Beebe said.

Full Dental Cost Insurance Awaits Public Demand

Insurance for comprehensive dental care on a broad scale awaits public demand, stated J. F. Follmann, Jr., director of information and research, Health Insurance Association of America, New York City. Interest now is localized mainly among labor unions, some employers, public health officials, and dental societies.

Dental costs in 1953, he said, were from $45 to $95 for 10 percent of the families in the Nation, from $95 to $195 for 6 percent, and more than $195 for 4 percent.

Reviewing current types of insurance coverage for dental expense, he pointed out the trend toward covering only work resulting from accidental injury or that performed in hospitals. Expansion of inhospital coverage is inhibited by the lack of concise contractual definitions, the hazard of unnecessary use of hospital facilities, and, in the absence of sound statistics, the expense of numerous contract revisions. Follmann reported that the Health Insurance Association of America, with the American Dental Association, has been developing a statistical base for estimating costs.

He suggested that a workable plan would protect against costly dental care in or out of the hospital, within the frame of comprehensive medical cost insurance, leaving the less expensive and the luxury items to be borne by the individual. For workers in industry, he proposed examination and referral combined with postpayment for routine costs and insurance for serious and unpredictable expenses.

Outlines the Objectives Of Dental Care Plans

Only 31 percent of the American people who need dental work are getting it, mainly because of cost, in the opinion of Jerry Voorhis, executive secretary of the Group Health Federation of America, Chicago. The solution lies in the group dental health plan, he believes, because of reduced costs resulting from lower overhead, better use of equipment, and fewer expensive operations brought on by neglect.

In illustration, he mentioned the dental care plan of a longshoremen's union, used by 95 percent of the eligible children of members, and a group practice clinic in West Virginia which gives all kinds of dental care to miners who pay $1 a month. Losses are subsidized by a miners' association. Both dental restorative work and maintenance are supplied in the medical plan of a St. Louis teamsters union, supported by a health and welfare fund to which employers contribute 5 percent of the payroll.

There is still no "magic formula" for restorative work, he commented, describing as practical the plan of Group Health of Washington, D.C., which, on completion of restorative work, maintains oral health on a prepaid basis.

He pointed out that maintenance costs are predictable, about $40 to $50 per year as estimated by a Public Health Service publication in 1954.

Voorhis defined the aim of group dental plans as high quality dental care, including treatment before serious decay, as well as ample compensation for the dentist. Such care is not always possible in solo practice, fee-for-service dentistry, he said, where specialization is difficult, time and equipment are often wasted, and the dentist is sometimes preoccupied with economic problems.

Health Agency Action

The health agency has a heavy responsibility, not just a "role," in the development of group dental care ventures, asserted Dr. Arthur Bushel, director of the bureau of dentistry, New York City Department of Health. He pointed out that the activity is justified as a contribution toward fulfilling unmet dental health needs of the community.

Toward encouraging such enterprises, the agency provides neutral ground for all groups concerned, said Bushel, remarking that many unilateral plans do not "get off the ground" because they are soon opposed by some local group.

The agency can contribute by supplying health statistics for estimates on costs and utilization and on dental manpower. It can also train survey personnel, interpret survey data, and give administrative leadership. Most important, concluded Bushel, the agency's dental health education effort can be directed at the community's potential subscribers.

Health Insurance Plan Offers Social Service

Social work consultation has been added to the services of the Health Insurance Plan of Greater New York, according to Edith S. Alt, di-

rector of the community resource division, which administers the program. The program has, in addition to the director, four consultants in the field, each assigned to one borough.

The three main objectives, Alt said, are to provide direct service for HIP's subscribers, to provide consultation service on community resources and social services to physicians and other personnel in the 33 medical groups of HIP, and to participate in all types of educational activities.

Direct service activities are planned not only to help with social and psychological needs of individuals referred by the medical groups but also to help the referring physicians learn more about the subscriber's problems. Only through the experience resulting from individual referrals, Alt declared, do we expect to modify attitudes and feelings sufficiently to affect a broader segment of the subscriber population.

In setting up the program, it was necessary to evolve practical methods through experience, for there was no blueprint to follow, Alt remarked. She believes the present program will help to demonstrate the possibilities of social work in a voluntary prepayment plan.

Methods and Management . . .

Puppeteer Questions The Dramaturgist

Shall the person interested in stimulating people to give highest priority to health matters alter his program to appeal to people's needs or shall he try to teach people new motives for health? asked Dr. Irwin M. Rosenstock, chief, Behavioral Studies Section, Public Health Service.

Adapting programs to people, Rosenstock said, might require radical reorganization of present programs and administration in order to use strongly held economic, sexual, or parental motives. On the other hand, he said, teaching new health motives to people might conflict with other strong values they currently hold.

At the present time, Rosenstock pointed out, there is not enough knowledge of people's motives and beliefs concerning health action to provide a wholly scientific approach to improving their health behavior. Additional research will be needed to permit a more scientific approach. However, he added, much can be done currently to increase public participation in health programs by using the results of past research.

The reported conclusions grow out of a consideration of principles of human motivation which apply to health action. According to Rosenstock, they are:

1. Behavior is determined first by the degree to which a person sees a health problem as threatening, that is, having both serious consequences and a high probability of occurring in his case, and second, by the extent to which the motivated individual believes that some course of action open to him will be effective in reducing the threat.

2. Behavior emerges from conflict among motives and among courses of action. When motives conflict and compete for attention, those with the highest value for the individual will be aroused. The motive for health, at least in the person who believes himself healthy, is probably not as potent as are economic and social motives. When an individual believes that no available course of action will be effective or that a prescribed course of action will create equally or more serious difficulties of other kinds, he is the more likely to follow a false course.

3. Motives related to health may not always lead to health action, and, conversely, health action may sometimes be determined by motives unrelated to health.

Traditional Health Services Need Reappraising

Are current public health practices fitted to deal with current public health problems? This question was posed by four investigators from the Bureau of State Services, Public Health Service: Dr. Donald Harting, Dr. Gordon Macgregor, Dr. Barkev S. Sanders, and Dr. Irwin M. Rosenstock.

For their initial study, designed to explore the implications of their query, the investigators chose Kit Carson County in the Great Plains of Colorado: 2,160 square miles, with only 6,700 people. The aged, 65 or more years, are relatively numerous. Infants under 1 year are relatively few, as are young people, aged 15 to 35.

Survey Results

A morbidity survey revealed, the authors said, that the major health problems in the county were heart disease, asthma, hay fever, and other allergies, diseases of the genitourinary tract, arthritis, back trouble, and other troubles interfering with motor function.

But, the authors found, no local organizations were providing such services or skills as physical or occupational therapy to prevent or ameliorate some of these conditions. Instead, one frequent procedure was recourse to a chiropractor. For men 45–54 years of age, the volume of service was actually greater for chiropractors than for physicians.

The dominant social value among these people, the authors observed, was independence; they frowned upon accepting help without paying for it in money or in kind. Beyond the public sharing of the costs of public health service, the authors asked, cannot the user of a service pay his share, to avoid the appellation of charity?

Frequency of medical visits for preventive health services was high among children and prospective mothers, but it tapered off almost to nothing for adults, especially the older ones, the authors reported.

Changes Seen

The authors suggested that the numerous social groups in the county could be put to use in increasing health consciousness and in deciding how to carry out the many nursing and home sanitation activities that are clearly needed in the county.

They concluded that meeting the needs of differing counties may entail changes in the role of public health personnel in the community, new ways of financing health services, and new combinations of skills, and, above all, it may entail "giving up our dedication to established notions of exactly how health services should be delivered."

Finds Method to Slim Experts' Waste Line

A new method for evaluating and making more effective use of the time and talents of professional public health personnel was described by Harvey L. Shapiro, assistant to the executive vice president, Albert Einstein Medical Center, Philadelphia.

Pointing to an already critical shortage of well-trained and well-qualified personnel, Shapiro said that professionals presently employed in nonclinical positions may be wasting more than 50 percent of their time in nonprofessional activities.

A professional activity, he explained, is not an activity which a professional performs or is asked to perform; it is an activity that requires professional training and experience, and simply cannot be performed by one with lesser, or other, training and experience.

Shapiro suggested how health program directors can develop with their staffs a workload study form which would permit them to analyze the kind of jobs they do and time spent on them. Representative periods on the job should then be selected for study, with, perhaps, a 1-day pretest of the form.

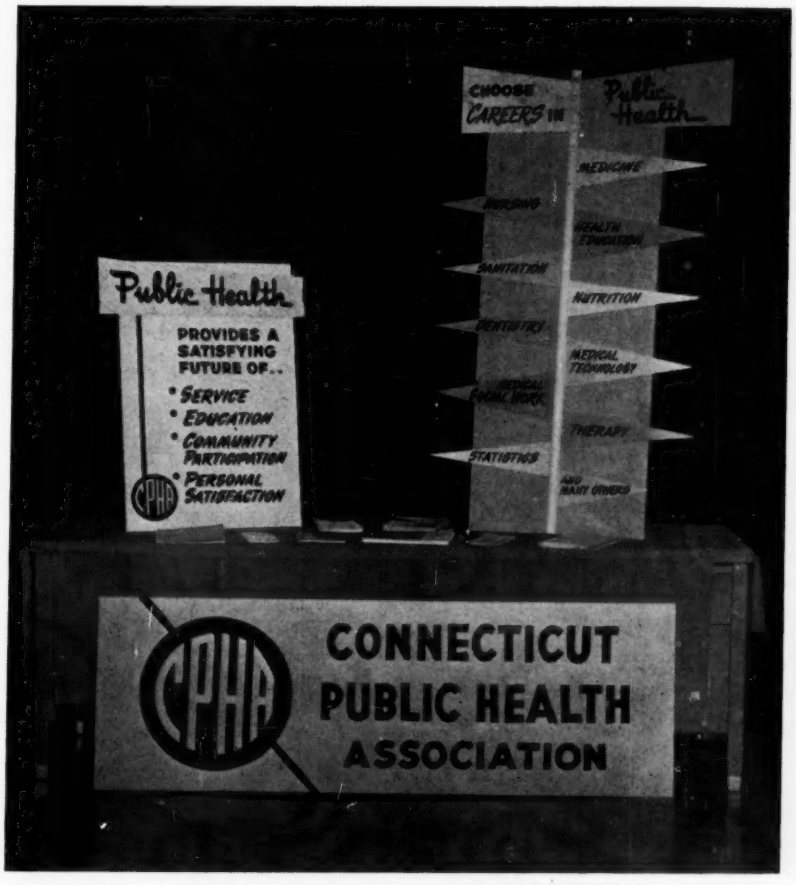
After sufficient data have been collected, Shapiro observed, the percentage of the time spent on each class of activities is easily calculated as a proportion of the total elapsed time for the selected period; spot checks should be used to verify calculations. Following an analysis of the results in terms of specific program objectives, a rescheduling of functions emphasis based on program need should be undertaken, he said.

In the example of his method, Shapiro showed that a medical social consultant spent 45 percent of her time on nonprofessional activities such as typing, filing, arranging for transportation, and preparing weekly statistical reports, all of which, he said, could have been done by a skilled nonprofessional.

Released from tasks of this nature, Shapiro said, the medical social consultant could have spent more time in the activities for which she was trained, or she could have taken on additional duties for which she, by training and experience, was fitted.

Promotes Student Interest In Health Careers

To stimulate the interest of Connecticut's junior and senior high school students, the Connecticut Pub-



"Health Careers" recruitment exhibit.

lic Health Association organized its own committee on public health careers in 1956.

The chairman of the committee, Dr. Henry Eisenberg, internist with the Connecticut State Department of Health, reported on its activities.

The committee has coordinated recruitment efforts with those of the Connecticut League for Nursing, the Connecticut Health League, and the Connecticut State Medical Society and its affiliates.

In the last 2 years, Eisenberg said, the committee has assigned speakers for scheduled talks before students, distributed literature and films to guidance counselors, started free membership for students in the Connecticut Public Health Association, participated in "cluster career days" of the junior chamber of commerce in Hartford, and displayed an exhibit at many meetings of professional health organizations and guidance counselors (see illustration).

A guidebook on public health careers has also been prepared and should be ready for distribution sometime in 1959, Eisenberg said. The guidebook, written for junior high school students, describes public health careers, academic and personal qualifications, salary range and place employed, accredited schools where training may be obtained, scholarships and loans, and further sources of information.

Health Departments Expand Research

Among several encouraging indications of advance in research is the fact that new Public Health Service extramural research projects have jumped in number from an average of 10 a year to nearly 30 during fiscal year 1957. The number of health departments participating in these grants has increased proportionately.

Summing up the role of the Public Health Service in research was Dr. W. F. Mayes, assistant chief, Division of General Health Services, Public Health Service.

In the Service's extramural research grant program, he noted nearly $4 million has been allocated in the past 12 years to support research in State and local health departments and one-fourth of that sum was granted in fiscal year 1957.

As an example of its intramural research activities, the relative amount of the total operating budget of the Bureau of State Services being allocated for research has increased from 30 to 50 percent between 1952 and 1958, Mayes said.

Other actions taken recently by the Service in response to the growing interest in research are, Mayes said:

- Creation of the key position of medical director, Community Services Program, in the Office of the Director, National Institutes of Health.
- Division of the old Public Health Study Section into three study sections: Nursing Research, Sanitary Engineering and Occupational Health, and Public Health Research.
- Division of the Mental Health Study Section into two sections, one on mental health and the other on the behavioral sciences.
- Establishment of general and specific research training grants and fellowships.
- Making available sizable grants for the support of experimentation and demonstration in new community mental health programs.
- Setting up a special advisory committee on epidemiology and biometry, with training grants in these subjects available to the schools of public health.
- Setting aside a portion of the Hill-Burton Act funds for research and demonstration in the field of hospital and medical facilities.
- Setting up a position of liaison officer for research between the Bureau of State Services and the National Institutes of Health.
- Employment of research grants officers in the Bureau of State Services and Bureau of Medical Services for the encouragement of extramural research in specific subjects, such as sanitary engineering, nursing, occupational health, air pollution, accident prevention, public health practice, and others.

Reviews Hagerstown Research Record

Research by the Washington County Health Department, Hagerstown, Md., in cooperation with the Public Health Service and the Maryland State Health Department was described by Dr. W. Ross Cameron, deputy State and county health officer for Washington County.

The county was selected for study initially in 1921 because of its relatively stable population and because it was typical of communities in the eastern United States in demographic characteristics, Cameron said. The objective at that time, he observed, was to obtain data on morbidity. The county was used also to test the validity of a number of public health methods.

Early Gains

Publications, especially those on morbidity, originating from the first study period (1921–24) have become standard references, Cameron averred. Furthermore, he asserted, many of the procedures developed during this period are in frequent use today. Patterns were established which nationwide studies have since utilized, including the investigations of the Committee on the Costs of Medical Care from 1926 to 1928, the National Health Survey in 1935 and 1936, and the current National Health Survey, he said.

Later Gains

Beginning in 1933, the studies, which had been concerned with communicable diseases, explored etiological factors for preventing chronic disease. Cameron summarized the accomplishments in research during this period as follows:

1. Long-term studies were undertaken as the need for them was envisioned.

2. Accumulated family records in Hagerstown, where the population remained highly stable, enabled researchers to analyze the effects of changed economic conditions on growth and development; relate Selective Service findings to the physical condition of men examined when they were children; study the relationship of chronic illness and economic status over a 20-year interval; provide long-term data on the progressive effects of illness; standardize techniques for health examinations and casefinding; and compare cardiometric examinations over a 20-year interval.

3. The decayed, missing, and filled index of dental health originated in Washington County.

4. Studies were completed on vitamin A deficiency, hearing acuity, and the effects of repeated inoculations with pneumococcus antigen.

5. Data collected in this area have been widely used for comparison with findings in other health studies, for planning health programs, and for instruction in schools of hygiene.

6. Participation in research by members of the health department's staff has increased performance, competence, understanding, and enthusiasm. Research opportunities have, in addition, attracted persons with high qualifications.

7. Research activities have enhanced the interest of the community in services to health.

Medical Students Ignore Public Health Careers

Only 5 percent of 2,669 medical students in 8 schools signified agreement with the statement, "I am considering making public health my major field of interest."

Factors influencing the recruitment of physicians to work in public health are under investigation by the committee on professional education of the American Public Health Association. The authors of this particular study, all from the University of North Carolina School of Public Health in Chapel Hill, were Drs. Robert E. Coker, Jr., Kurt W. Back, Thomas G. Donnelly, Norman Miller, and Bernard S. Phillips.

Terming the reply "not surprising," the authors went on to examine the attitudes underlying the highly negative response. Other questions revealed, they said, that there was considerable confusion, even among those students expressing interest in public health, as to what the public health field comprises.

Although medical students who want to specialize in public health are relatively few, 21 percent of the students said they were interested in doing some work in public health as part of a different career, the authors said.

"The general picture we get from those interested in public health," the investigators reported, "is that they are less clear in their thinking than other medical students about their future as physicians. This apparently is the impression which they give to other students, who characterize them as less ambitious, less independent, and less creative, and this stereotype represents approximately the picture these students give of themselves."

Attitudes Differ

The students favorably disposed to public health differed from the others in that they were considerably less interested in independence of action, in a variety of activities, or in certainty of effect. They were also less concerned with prestige within the profession, with a manageable workload, and with challenges to their capabilities. They were less concerned with serious consequences in the event of mistakes and with having a job which would require exacting analysis, cast them in the role of counselors, or provide a high income, the authors found.

On the other hand, they said, students favorably disposed toward public health were more likely to feel that an ideal job should permit a contribution to knowledge. Another finding was that, given a choice among independence, success, and popularity, students favorable to public health put success last; among students negative to public health, success was the first choice.

The authors added that the favorably disposed students were less likely to have been premedical students in college and were more likely to feel insecure about their standing in medical school.

Backgrounds Differ

The background of the 21 percent favorable in some way to public health was revealing, the authors stated. These students were found to have less financial backing for their future plans as physicians, and were more likely to come from professional families, other than medical, which emphasized satisfactory occupation rather than a financially rewarding career.

Furthermore, these students revealed stronger religious convictions than those negative to public health, which the authors thought was likely to play an important role in their motivations.

Describing the situation for public health as "bleak," the authors pointed to two rays of hope. First, there are some medical students who manifest some interest in public health, and this interest might be nurtured and exploited. Second, current choices among medical students are frequently not final, and, moreover, public health physicians are usually late in making their ultimate career commitments.

Emergency Planning Needs Cited

Far too little is being done by health services to prepare for disasters, according to the American Public Health Association's committee on emergency sanitation prac-

Major disaster areas aided by the Office of Civil and Defense Mobilization [1]

Date of declaration	State [2]	Nature of disaster	Presidential allocation (in thousands) [3]
1953			
May 2	Ga	Tornado	$175
Mar. 15	Tex	do	358
Mar. 29	La	Flood	416
June 2	Mich	Tornado	51
June 6	Mont	Flood	315
June 9	Mich	Tornado	140
June 11	Iowa	Flood	170
June 11	Mass	Tornado	500
June 19	Tex	Flood	40
July 2	N.H	Forest fire	150
Oct. 22	Fla	Flood	384
Oct. 30	Alaska	Severe hardship.	50
Dec. 6	Miss	Tornado	164
1954			
Feb. 5	Calif	Flood, erosion	587
Mar. 17	Ga	Tornado	150
June 23	Iowa	Flood	175
July 1	Tex	do	[4] 878
July 14	Nev	Earthquake	[4] 194
July 31	S. Dak	Flood	40
Aug. 4	W. Va	do	62
Sept. 2	Mass	Hurricane	2,500
Sept. 2	R.I	do	2,500
Sept. 13	Maine	do	1,003
Sept. 17	Conn	do	500
Oct. 7	N.Y	do	300
Oct. 13	N. Mex	Flood	50
Oct. 17	N.C	Hurricane	1,500
Oct. 17	S.C	do	750
Oct. 18	Md	do	----------
Oct. 22	Pa	do	----------
Oct. 26	Ind	Flood	175
Nov. 10	Alaska	Severe hardship.	[5]
1955			
Apr. 1	Hawaii	Volcano	100
May 25	Colo	Flood	175
May 27	Kans	Tornado	325
June 1	Okla	Flood, tornado.	210
June 21	Nev	Flood	200
Aug. 13	N.C	Hurricane	[4] 3,950
Aug. 15	N. Mex	Flood	118
Aug. 20	Pa	Hurricane, flood.	[6] 1,000
Aug. 20	Conn	do	[4] 1,000
Aug. 20	Mass	do	[6] 1,000
Aug. 20	N.J	do	1,000
Aug. 20	R.I	do	[6] 1,000
Aug. 20	S.C	Hurricane	400
Aug. 22	N.Y	Hurricane, flood.	500
Dec. 22	Alaska	Severe hardship.	[7] 25
1955—Con.			
Dec. 23	Calif	Flood	[4, 6] 9,500
Dec. 24	Nev	do	370
Dec. 29	Oreg	do	1,370
1956			
Feb. 25	Wash	Flood	250
Mar. 15	Pa	do	50
Mar. 29	N.Y	do	50
Apr. 5	Mich	Tornado	135
Apr. 7	Okla	do	65
Apr. 9	Tenn	do	----------
Apr. 18	Ala	do	----------
Apr. 21	Idaho	Flood threat	600
Apr. 24	N.C	Severe storm	200
May 17	Ohio	Windstorm	1,250
May 21	Pa	Storm	100
June 12	Colo	Flood	50
June 23	Mo	Water shortage.	----------
July 20	Oreg	Torrential rain.	126
Aug. 9	Pa	Storm	300
Aug. 18	Puerto Rico.	Hurricane	[4] 3,500
Aug. 31	Nev	Flash flood	30
Oct. 4	La	Hurricane	260
Dec. 29	Calif	Fire	100
1957			
Jan. 31	Ky	Flood	[4] 2,000
Jan. 31	W. Va	do	200
Feb. 1	Va	do	300
Mar. 1	Oreg	do	300
Mar. 6	Wash	do	300
Mar. 16	Hawaii	Tidal wave	60
Apr. 29	Tex	Hurricane, flood.	[4] 2,200
May 16	La	do	[4] 3,750
May 18	Okla	Flood	2,800
May 22	Mo	Tornado, flood.	2,850
May 27	Idaho	Flood	63
May 29	Ark	do	1,200
June 22	Ill	do	500
June 22	Minn	do	800
June 22	N. Dak	Tornado	24
Sept. 5	Kans	Flood	106
1958			
Apr. 4	Calif	Flood	[4] 2,000
May 15	Ark	do	[4] 500
May 20	La	do	----------
June 6	Tex	do	----------
June 26	Kans	Tornado	----------
Total			63,500

[1] Formerly the Federal Civil Defense Administration. Many more disasters occurred than are listed here, but records were not kept of all of them.

[2] No records for seven States: Arizona, Delaware, Nebraska, Utah, Vermont, Wisconsin, and Wyoming.

[3] Rounded to the nearest thousand. The amounts of money allocated by the President serve as a rough comparison of the relative magnitude of the disasters. More specifically, they indicate the relative damage to publicly owned facilities.

[4] A portion of these funds were made available to other Federal agencies.

[5] Alaska authorized to expend unused funds from Presidential allocation of October 30, 1953.

[6] Presidential allocation subsequently reduced.

[7] Presidential allocation subsequently withdrawn.

tices. Most serious, the committee reported, are the lack of operational planning and the minimal participation in planning for survival.

As an essential element in dealing with disasters, the committee observed, "Operational plans spell out who is boss and who takes the boss' place when the boss isn't there . . . what equipment and supplies are available and where they are to be found, procedures for obtaining transportation, how to communicate, what to communicate, and with whom. The history of disasters is replete with scenes of chaos due to the lack of operational plans that provide for control and direction of the forces offering help, a plan that provides for a description of the course of action to be taken in a contingency, an instrument that provides direction when [conventional] communications fail and becomes the sole guide of individuals until communications and control can be reestablished."

Important considerations and principles relative to emergency planning, the committee said, are:

1. Planning must be established as a basic responsibility and continuing function of all agencies and organizations promoting and safeguarding the health and welfare of the people.

2. Operational plans for emergency sanitation services should be developed by and built around government health agencies at all levels. The personnel of these agencies must provide the framework into which other professional and technical personnel can be integrated.

3. Professional and technical personnel with experience and training in sanitation should participate only in emergency sanitation operation, avoiding responsibilities in other emergency activities.

4. Operational plans for emergency sanitation services should be integrated into the total civil defense and disaster preparedness plan, if it is underway; otherwise, sanitation plans should be developed separately and later integrated into the master plan.

5. Emergency planning must be on a disaster area basis and not restricted to jurisdictional boundaries.

6. Emergency plans must be flexible enough to meet any contingency, regardless of kind or magnitude.

7. Emergency plans must be developed for all areas of the country. Since 1953, only seven States have been free of disasters for which aid was sought from the Office of Civil and Defense Mobilization (see table). In civil defense disasters, planned or spontaneous evacuation of people from disaster areas will impose emergency conditions upon reception areas, which must be met adequately. Areas not affected by disaster or reception conditions must plan to extend assistance and support to affected areas.

8. Training in emergency sanitation practices should be developed and made available to sanitation personnel and auxiliaries. Training should include the use of radiological monitoring equipment to determine the safety of the environment, water, milk, and food, and the use of emergency equipment such as portable water purification units. (In this connection, the committee recommends reinstituting the course given by the Public Health Service prior to July 1957, entitled, "Sanitary Engineering Practices in Civil Defense Disasters.")

9. Continuing research is needed in the development and refinement of procedures for rapid identification of biological organisms.

10. Greater use and familiarity with the molecular filter technique for isolating and identifying bacteria should be promoted among professional sanitarians.

11. All available resources and equipment should be appraised. Needed resources and equipment should be determined; and mutual aid arrangements should be established among organizations to supplement resources on short notice. Lists should be compiled for local use and for State and Federal agencies in planning. Essential emergency items should be stockpiled; many of these can and should be obtained through OCDM on a 50 percent matching basis.

12. More attention must be paid to potentially disastrous effects of breakdowns of sanitary facilities.

13. Skilled manpower should be developed as auxiliaries to public health workers.

14. In time of disaster, the chief of emergency sanitation services should devote himself solely to the administrative and executive duties of his office, according to the disaster plan.

What Are You Measuring When You Measure?

The number of times that a health officer visits a dairy farm is not a measure of the farm's sanitation practices; neither is the absence of outbreaks of foodborne diseases necessarily an indication that restaurants are following good sanitary methods, commented Dr. V. A. Getting, professor of public health practice at the University of Michigan School of Public Health.

A number of distinctions, he said, are required in the proper evaluation of programs or procedures: distinctions between results and efforts, between objective and subjective criteria, between costs and the merits of certain expenditures, and so on.

The fundamental necessity in proper evaluation, Getting pointed out, is to define one's objectives so that one may further define the attainment of these objectives, measure the degree of progress toward attainment, and evaluate periodically the effectiveness of activities.

Getting termed the routinization of certain procedures a "trap." Routine investigations of dairy or restaurant sanitation, after several years and after educational programs have been completed, may accomplish little and that little at an unjustifiable cost, he said. "Merely because a director some 20 years ago started a certain routine procedure and it was found to be good and effective at that time does not mean

that it must be continued at this time or in the future," Getting said.

The rapidly changing environment requires flexible programs of environmental health and open minds, he said. Progress in environmental health can be attained, he added, if we question accepted practices, investigate new approaches, test new ideas, and set new objectives.

Getting called upon public health workers to make use of the special competences available in schools of public health, and to use standards purposely developed by the American Public Health Association to aid evaluative studies. "The application of these standards to specific programs is evaluation. But to inventory or list activities is to survey a program without adequate measurement of the attainment of objectives," he concluded.

Voluntary Sanitation Pays Dividends

Sanitation in food-handling establishments improved by 18 percent in 12 weeks as the result of a voluntary self-inspection program in Rocky Mount, N.C. Public schools in the city improved the sanitation of their facilities by 16 percent in the first 2 years of a continuing voluntary program.

Commenting on these developments were Kelly G. Vester, senior sanitarian of the Rocky Mount Health Department, and Dr. J. W. R. Norton, State health director, North Carolina State Board of Health.

After the interest of management, food handlers, and the public had been aroused and cultivated, and the press, the local government, and civic groups had endorsed the plan of voluntary inspection, appointments were made in advance at restaurants for inspection during slack periods. This enabled the restaurant staff to observe the complete plant inspection and to rate themselves. In 60 establishments, 500 workers were allocated 1 inspection per month. The inspection program was based on the North Carolina Restaurant Code and used a questionnaire covering 21 sanitation items.

During inspections, Vester and Norton said, equipment was disassembled and scraped with a knife, and deposits from the surfaces were spread on a napkin. Tables, sinks, pots, storerooms, and hard-to-reach places "went under the knife." The temperature of refrigerators and dish sanitizing equipment was also carefully noted.

The inspection form was read aloud and answers to the questions were determined by a majority staff vote, Vester and Norton reported. Informal roundtable discussion brought numerous sanitary shortcomings to light. Nobody was criticized, they said, and discussions were mutual aid sessions; reactions indicated that everybody intended to do something.

Public school self-inspection in Rocky Mount was launched on a similar basis at the beginning of the 1950–51 school year. Cooperation was obtained from the school superintendent, principals, teachers, students, and the PTA. Equipped with a questionnaire covering the sanitary aspects of the physical plant, toilets, showers, dressing rooms, and outside environs, the program got underway with weekly inspections, Vester and Norton related.

At the beginning of the 1951–52 school year, they said, the schools were graded on existing sanitary conditions. By May 1952 they had showed an improvement of 6.4 percent. The next year a "sanitation hour" was added which included such projects as lighting surveys, room and grade competitions, posters, and essays. By the end of the second year, school sanitation had improved citywide by 16.1 percent. School officials have since accepted the responsibility of carrying on this work, they said.

In another presentation, Charles L. Senn, sanitation director of the Los Angeles City Health Department, compared self-inspection plans with fee-for-service charges, and pointed out that at present several different inspection agencies cover the same territory with a concomitant duplication in costs.

Inspection by management of its own establishment as a part of regular supervision, he said, is a most desirable form of self-inspection. Utilization of the services of consultants and fieldmen provides a level of service superior to that usually available through an official agency, Senn observed, but he warned that self-inspection is not a satisfactory substitute for periodic official inspections made frequently enough to determine reasonably that proper sanitation is being maintained.

Misconceptions Block Occupational Health

Four misconceptions stunt the local health officer's interest in occupational health, according to Dr. Harold J. Magnuson, chief of the Occupational Health Program, Public Health Service.

First, he said, occupational health still has a limited connotation for many people, who restrict it to mine, mill, and factory. It should be applied to every place people work, including the farm.

Second, many confine occupational health to the identification and control of harmful exposures in the workers' environment. It should be extended to embrace the idea of maintaining the health of the employed. Moreover, Magnuson argued, local health officers should look upon occupational groups as potential action bodies needing help to solve their general health problems.

Third, industry is too often considered separately from the community. As a result, both industry and the health department suffer through a failure in communication, he observed.

The fourth misconception is that an occupational health program must necessarily be a specialized and separate activity of the health

department. But in communities of fewer than 100,000 people, Magnuson said, such activities may be undertaken by the basic health department staff.

Yardsticks Offered

Magnuson suggested several yardsticks with which the health officer might measure the strengths and weaknesses in his own occupational health situation.

In appraising that situation, the health officer should determine the general health status of workers and the specific occupational health problems in his community. He should look for substances that produce dermatitis, chemical causes of toxicity, and environmental factors such as fumes, dust, and noise.

He also thought that the health officer should determine the characteristics of the community's labor force (obtaining such information from the Bureau of the Census, State employment offices, bureaus of economic research, and the local chamber of commerce), and the types of industry in which the workers are employed. The health officer can expect, for example, Magnuson said, a frequency of accidents 2½ times higher in small plants than in large ones. But, he noted, few of the large plants will have medical departments or industrial hygiene services.

When new industries enter a community, he pointed out, the health officer has the opportunity to develop excellent relationships with management and workers by making his services known. Even when a plant is in the blueprint stage, the health officer can be invaluable in pointing out needed industrial hygiene controls, Magnuson said.

Another essential, Magnuson observed, is information on the local incidence of occupational disease. As a first step, the health officer should determine the existence of any laws or regulations requiring reporting of occupational diseases by physicians.

If reporting is required, the health officer should arrange to be notified of reports originating in his jurisdiction. In this regard, Magnuson said, the health officer can do much to encourage physicians to comply with laws pertaining to the reporting of occupational diseases, and he can encourage reporting by offering assistance in any epidemiological investigations that may be required. Complaints of workers or of persons living in the vicinity of an industry may also be a source of information, pointing to situations that require correction, he said.

Using the Staff

But how, Magnuson asked, can the local health officer undertake these responsibilities without diluting his staff's present activities?

He pointed out that nurses and sanitarians offer the greatest numerical potential for extending services to industry. The public health nurse, who has unquestionably won the respect of industry, can, on routine visits, familiarize plant nurses with community health services, follow infectious disease cases, and demonstrate the values of part-time nursing services in small plants lacking such services.

The sanitarian can extend his usual services of inspecting plant cafeterias, sanitary facilities, and general housekeeping to apply to industrial waste, cross connections, and water facilities. He can help reduce occupational dermatitis by determining that washing facilities are adequate and are used effectively. With some training, he can locate trouble spots for action by specialists, see that recommendations are complied with, and assist in surveys of environmental conditions in plants and in industrial health programs.

When the health officer encounters situations requiring specialized help, he can avail himself of his State health department services, as well as those of other local health departments, insurance carriers, voluntary agencies, professional associations, universities, and private consultants, Magnuson said.

He called attention to a kit containing detailed information on occupational health which is available from the Public Health Service's Occupational Health Program.

Magnuson concluded that the occupational health field may be one of the most effective for multiplying the resources of the health department in bringing services to people.

Aesculapius Cures Own Headache

Attempts to persuade industry of the need of industrial hygiene backfired when industry asked why the State government did not provide health services for its own employees, related Dr. Lester M. Petrie, director of the preventable diseases service, Georgia Department of Public Health.

As a result of rebuffs like these, Petrie said, the Georgia State Employees' Health Service was begun 3 years ago. Its policies were approved by the State and local medical societies and by the Georgia Association of Local Public Health Physicians.

The primary objectives of the employees' health service is to teach the State government's 24,000 employees the responsibility of each individual for his own health, the limitations of his own resources, and the community resources available to help him, Petrie said. With 20 people a day, 80 a week, and 3,000 by the end of the first year reached, Petrie called it "mass education."

Educational Means

Petrie said that the educational program uses multiphasic health screening tests, counseling in health problems, and first aid and emergency service.

The multiphasic health screening procedure consists of an approved battery of health tests offered to each employee on an annual basis; the tests are designed to aid him

and his physician in evaluating his health, Petrie said.

The health service offers no medical care other than first aid, he pointed out, and all employees who are found to have a health problem are urged to see their private physicians, to whom the results of the tests are reported if desired.

The employees' health service differs from the usual industrial medical department in that the latter's services are normally saturated by 10–25 percent of the workers who are repeaters. The employee's health service, Petrie said, tries to reach the other 75 to 90 percent with an educational program designed to keep them healthy. Petrie estimated that 90 percent of those referred to their private physicians would not have gone had it not been for the screening and health education message that went with the tests.

Protocol Cited

A protocol for promoting an occupational health program for local government employees was unanimously approved by the Georgia Association of Local Public Health Physicians in May 1958, Petrie said.

The protocol gives a formula for estimating the financial value of a reduction in sick leave. The health service would only have to reduce sick leave by 0.175 sick leave hour per 100 man-hours worked to offset the cost of the service, Petrie observed.

Preventing illness, Petrie concluded, means maintaining the productive capacity of our labor force and the wealth that is so vitally needed to continue services. For these reasons, he said, no one, especially a health department, can afford to ignore the opportunities of the occupational health approach.

OASI Disability Ineligibles Present New Dilemma

The handicapped citizen who is denied disability benefits but who is nevertheless rejected by prospective employers as unemployable presents a serious dilemma, declared Arthur E. Hess, assistant director, Division of Disability Operations, Bureau of Old-Age and Survivors Insurance, Social Security Administration.

The situation, he indicated, is the result of two different points of view. On the one hand, the OASI disability program has as its keystone "medical determinability." Under this concept it must deny disability benefits to handicapped persons who, from a clinical standpoint and in light of their age, education, and personal characteristics, have enough physiological or functional reserve to perform any substantial work.

An employer, on the other hand, even though he may recognize a valid social need, is concerned primarily with what the job candidate can contribute. He may decide that the candidate has "too little capacity for work left to regain his place in the industrial community."

Hess suggested a two-pronged approach to the predicament: One, expand medical and other resources or marshal present resources in such a way that disabled citizens may receive more effectively the advantages of modern medicine and related services. Two, stimulate employers, labor organizations, and community agencies to explore new avenues of productive activity for persons with limited work capacity.

Applicants denied disability benefits admittedly have characteristics that militate against reemployment, Hess said. For example, they are, on the average, 59 years old, an age at which even the nonhandicapped worker has difficulty getting a new job. In addition, they are in relatively poor health, lack skills, and are victims of academic poverty.

These handicapped persons, moreover, have proved poor prospects for vocational rehabilitation, according to Hess. The law requires that all applicants for disability benefits be referred to State vocational rehabilitation services. However, the "vast majority" of those denied benefits, as well as 94 percent of those whose claims are granted, are not accepted for VR services, he said.

Assessment of an individual's employment prospects, Hess noted, must take into account not only his physical and mental limitations but also the employment opportunities in the community and the capacity of the local VR facilities. Since VR resources are not unlimited, only the best candidates can be accepted.

He believes that new kinds of restorative services may be needed. Those for whom remunerative work is not feasible may nonetheless profit from social or medical services that would make them better able to take care of themselves, he observed. He assigned directly to the community the major responsibility for seeing that handicapped persons do not become "forgotten people populating a no man's land."

Definition of Disability

Explaining further the statutory definition of disability, Hess emphasized that the inability to work refers to the inability to do "any substantial work," not merely the kind of work last engaged in or the kind for which the applicant is most obviously suited.

The definition also makes clear that the disability must be a physical or mental condition that can be determined objectively by medical examinations or tests and that the disability must be the primary cause of the individual's inability to work. Finally, the disability must result from a condition that has persisted for at least 6 months and that can be expected to continue for an indefinite time.

The decision regarding a claimant's eligibility for benefits, Hess pointed out, is based primarily on clinical and laboratory findings. The necessary data are normally presented in the applicant's medical report, but in some instances supplementary information may be obtained in an examination ordered by the social security agency. Under no circumstances is the claimant's physician asked to certify that his patient is "disabled," Hess said.

He credited the SSA's Medical Advisory Committee, drawn from medical and allied professions outside the Government, with invaluable assistance in the development and refinement of OASI policies, as well as in the explanation of methods and objectives to the profession.

Retarded Learn to Earn In Hartford Project

More than half of the mentally retarded adults enrolled in a Hartford, Conn., project were trained to earn a living in competitive or sheltered employment, reported Dr. Alfred L. Burgdorf, director, Hartford Health Department, and Alice Moore, coordinator, job training program, Hartford Association for Retarded Children.

Over a 29-month period 46 persons were admitted to the project: 17 demonstrated ability to work in competitive employment; 8 had ability to work in sheltered employment; 11 proved incapable of benefiting from training; and 10 were still in training. The total earnings of those employed are $23,000; total cost of the program is $43,500, the authors said.

Trainees were limited to persons 16–35 years of age with I.Q.'s ranging from 50 to 75, who were sponsored by the bureau of vocational rehabilitation, Connecticut Board of Education, and who could travel alone.

The project was initiated in 1956 by two voluntary organizations, the Greater Hartford Association for Retarded Children and the Hartford Rehabilitation Center. The center's physical facilities, provided by the city, are located at the site of the city hospital, operated by the welfare department and the health department. Health department staff members are active in both voluntary organizations and confer frequently with the center's staff.

Training Procedures

Medical and psychological examinations, admittance interviews with prospective trainees and their families, and prevocational exploration and appraisal preceded the actual training. The training included placement in the center's industrial workshop and subsequent placement in the city hospital or in an on-the-job training location.

Individual and group counseling, classes in posture training, continuing evaluation and planning, medical review, and group sessions with trainees' parents were held concurrently with training.

According to the authors, the results indicate that retarded persons may be too immature at 16 years for job placement, and that consideration should be given to requiring those with a certain I.Q. to continue in school to a higher age. I.Q. levels, they found, were not a completely reliable index; the ability to conform to socially acceptable standards of behavior and be socially independent is necessary.

More extensive psychological testing and prevocational exploration and appraisal were needed. Trainees lacked familiarity with actual work situations and had to acquire work habits and skills before they could be transferred to job training.

The city hospital and a supermarket proved to be useful on-the-job training locations for those who lacked the dexterity and coordination for factory work.

The authors felt that in a metropolitan area, combined planning and programing by voluntary and official agencies provide services of a caliber neither could produce individually.

Records and Statistics . . .

Hospital Records at Odds With Interview Data

Comparison of hospitalization data obtained in a household interview with data from hospital records reveals marked discrepancies, which increase in magnitude as the comparison becomes more specific, reported Dr. Barkev S. Sanders, medical economist and statistician, Public Health Service.

His major interest in this comparison, Sanders declared, is not as a test of the validity of household survey data on hospital utilization, but rather as a measure of the reliability of other information commonly collected in morbidity surveys. We lack appropriate criteria for direct evaluation of this other information, he pointed out.

Using the hospital records as the basis for appraising the household survey data, the study found an error of 8 percent in number of individuals hospitalized. For number of days hospitalized, the two sources gave an identical figure for only 53 percent of those hospitalized. For 44 percent of the admissions, the two sources agreed as to number of days, and the total days for these cases accounted for 40 percent of the days of hospitalization shown by the hospital records.

It was observed that if the object is to obtain average measures of hospital admissions, or days of hospital care, or hospital stay per admission, the differences are much less because of the compensatory character of the errors. For example, 19 individuals were reported hospitalized by the household survey but not by the hospital records, while 25 were reported hospitalized by the second source but not by the first.

Perhaps more important for appraisal of morbidity surveys in general, Sanders indicated, the study revealed a host of factors that seem to affect the level of agreement:

place of residence; age, sex, and marital status; recency of hospitalization, cause for admission, and length of stay; occupation and family income; age, sex, and educational level of respondent; relationship between patient and respondent. Also, the level of agreement varied considerably among interviewers.

Sanders has concluded that there is need for improvement in household surveys, "especially when the object is to establish interrelationships between, for example, income and illness or illness and occupational pursuits or, even more so, when an attempt is made to correlate health status with volume and type of medical service received."

The type of analysis represented by this study, he said, provides clues as to how the quality of information collected in household surveys might be improved. In the meantime, he urged statisticians to consider carefully the purposes for which morbidity surveys are to be used in order to assess permissible tolerance levels.

The study was conducted in a rural county in the Great Plains area, with about 1,100 families participating.

Ma and Pa Give Survey Consistent Answers

Household respondents answering survey questions for the man of the house gave approximately the same replies as the man himself, reported Philip E. Enterline, chief statistician of the Heart Disease Control Program, Public Health Service.

Enterline set up an area probability sample in six counties of North Dakota in 1956 to test the validity of information provided by household respondents in health surveys. An enumeration of the dwelling units in the sample identified 1,886 men 35 years of age and over. One-third of the men were not at home when the interviewers first called. Information on one-half of these, selected at random, was supplied by household respondents, 93.1 percent of whom were wives of the men. The interviewers revisited the other half until the man could be found at home and interviewed for himself.

Questions were asked about the men's personal characteristics, work history, food habits, cigarette smoking, illness, medical care, health symptoms, and characteristics of parents.

In only three places, Enterline said, were the differences significant at the 0.05 level. Household respondents reported more histories of rheumatic fever for the men than the men reported for themselves. Men reported more histories of stroke for their mothers than the respondents reported. And the men estimated fewer grams of fat in their daily diet than were estimated by the household respondents.

Enterline pointed out that it would be difficult to generalize about the biases in health information provided by household respondents regarding others in the household, because answers probably vary with the characteristics of the respondents and with the disease under consideration. But, he said, for the type of questions used in the North Dakota health survey, the replies of household respondents will probably result in no less disease reported in total and in broad disease categories than would be the case if each adult were interviewed for himself.

They Wouldn't Say No They Didn't Say Yes

Free health examinations appeal less to old people than to those in any other age group, reported Paul N. Borsky, senior study director, National Opinion Research Center, University of Chicago, and Dr. Oswald K. Sagen, chief, special studies, U.S. National Health Survey, Public Health Service.

The reluctance of old people to commit themselves to an appointment for an examination following household interviews was revealed by a sample of persons interviewed by the National Health Survey. These people were offered a free health examination and at a later date were reinterviewed to determine why they accepted or refused or if they had changed their minds.

Borsky and Sagen said that those who refused health examinations at both interviews were relatively well satisfied with their health and the status of medical research, reported fewer chronic illnesses, and considered it less important to assist this study by cooperating. Relatively few, the authors related, expressed any desire to see a doctor or thought that their illness would impose a difficult financial burden on their families. From their reading, radio, and television habits, it was apparent they were relatively disinterested in health matters. They also had less faith in doctors, tended to diagnose their own complaints, and had higher incomes than those who agreed to come for free examinations.

Those who refused an examination after having agreed to have one reflected many of the attitudes of those who persistently refused. Their interest and concern about health matters, however, was lower, and they tended to be concentrated at the two extremes of age, income, and education, Borsky and Sagen said.

The authors explained the change from refusal to acceptance resulted primarily from accepting a proxy answer for someone absent at the first interview.

Those who cooperated consistently with the survey, Borsky and Sagen observed, generally take their health and the consequences of illness seriously, believe that research should be supported and improved, come from the middle group of age, income, and education, report more chronic illnesses, and have confidence in their physicians. They include a relatively high proportion of nonwhites.

Borksy and Sagen inferred that the indifferent response by those in the high socioeconomic stratum reflects a lack of interest in any health service not offered by a personal physician.

Health Insurance Data Acclaimed as Sound

The scientific basis of the data on health insurance coverage published annually by the Health Insurance Council justifies their prominence, in the opinion of David Robbins, assistant director of statistical research, Health Insurance Association of America, New York City.

The data are collected in three separate annual surveys and put together by the council staff, Robbins explained.

One survey, conducted by the council itself, obtains data from insurance companies. Another provides data on Blue Cross, Blue Shield, and medical-society-sponsored plans; the national bodies of these groups collect data from each plan and forward the results to the council. The third survey, conducted by the Division of Program Research of the Social Security Administration, reports coverage through independent plans.

For its survey of insurance companies, the Health Insurance Council, in January each year, mails two questionnaires to each company underwriting accident and health insurance, of which there are currently some 700. One questionnaire asks for data on group insurance and the other for data on individual policyholders. Totals for various types of coverage—hospital expenses, surgical expenses, nonsurgical basic medical expenses, major medical expenses—are segmented into persons insured and dependents of insured. The data are also distributed by State.

The response rate for this survey is so high (covering 86 percent of premiums written in 1957), Robbins maintained, that little attention need be given the possibility of bias. Estimates of persons covered by nonreporting companies are derived from published information.

Of major concern in determining the extent of health insurance coverage is the possibility of counting the same person more than once, Robbins indicated. To measure the amount of duplicate coverage, the council conducts periodic investigations, he said, mentioning the following studies:

- Analysis of 1,000 consecutive applications for insurance and 1,000 consecutive claim applications with 45 of the leading writers of individual accident and health insurance.
- Information from representatives who install and service group contracts in six leading companies whose business represents more than two-thirds of the total group insurance in force.
- Analysis of several thousand hospital admissions in selected areas of the United States.

Duplication factors derived from such studies, Robbins stated, are split on a judgment basis into duplication within the insurance business and duplication between insurance and other coverages. In determining State figures, it is assumed that duplication is higher in States having a higher proportion of the population covered by the particular type of insurance than in States with a lower proportion.

Colleges Plan Curriculums In Vital Records Science

Vital records, which 50 years ago were used mainly in the mass as public health aids, now serve extensively as individual evidentiary documents.

This change was attributed by Dr. A. W. Hedrich, formerly chief of the division of vital records and statistics, Maryland State Department of Health, to social legislation covering, for example, child labor, adoption, school entrance, and social security.

Twenty-two years ago, the Maryland Vital Records Office issued fewer than 2,000 certified copies per year for evidentiary use. In 1957, he said, more than 55,000 copies were demanded.

Hedrich believes that, since the health department is still custodian of these records, it should set up an advisory board to aid in adapting the records system to all major social needs.

Illustrating the growing complexities of records administration, he compared the former simple omission of father's name from the illegitimate child's certificate with current practices which reconcile conflicting interests of child, mother, natural father, and others concerned. Handling of death certificates also frequently demands acumen in psychology, law, and administration.

To train executives to cope with the complex questions arising from the broader social functions of the records, a number of schools of public health have jointly scheduled an exploratory course for the summer of 1959 at the University of Michigan in Ann Arbor. The outcome, Hedrich said, will aid the schools in setting up curriculums leading to a master's degree with a major in the science of registration and recording of vital events.

Operations Research Meshes Alien Data

An operations research philosophy should be adopted in using statistical data to solve administrative problems, according to Dr. W. V. Charter, director of the Medical Statistics Division, Department of the Navy.

A key point in the process is "the 'meshing' of data from seemingly unrelated reports," he said. As an example, he referred to his division's use of data from three separate reports in determining optimum allocation of medical officers to hospitals: report of beds and patients, outpatient report, and staffing re-

port. Each is submitted in order to measure a different aspect of the Navy's medical program. By relating the data something new is produced, he said, something not originally intended when the reporting system was set up.

To illustrate how statistics can serve as a tool for managerial control, Charter described in detail the procedures his division follows in estimating requirements for medical officers for hospitals. The objective, he pointed out, is realistic requirements, within the limits of personnel ceilings and other practical considerations, not what would be desirable under ideal circumstances.

Physician-patient ratios for each of several categories of patients have been developed, and each quarter these are applied to the reported workload of each hospital. To avoid a purely mechanical approach, however, individual situations are always considered, he remarked.

The estimates, Charter claimed, are "a good starting point and a good basic tool for physician allocation." He listed the following three ways in which they can be used:

- As a means of comparing hospitals to see whether any are relatively understaffed or overstaffed.
- As a measure of the validity of requests for personnel increases sent in by the hospitals.
- As a guide to allocation of medical officers when the total number of personnel is increased or decreased.

The value of our functions lies in obtaining current data, making systematic computations and evaluations, and presenting the data and statistical analyses in meaningful terms, Charter concluded.

Review Tightens Reports On Obstetrical Needs

Ways to produce reliable reporting of pregnancy and neonatal facts were defined by Dr. Samuel Shwartz, chief of the community standards division, bureau of maternal and child health, and Howard West, chief of the biostatistics and health education division, District of Columbia Department of Public Health.

Since 1940 in the District of Columbia a medical supplement to the birth certificate has carried such data, they explained. After a study in 1952, these changes were made:

- The questions, attached to the face of the certificate, appear in check-box design. They can be answered within 2 or 3 minutes.
- The items deal with subjects the physician can answer readily. They call for factual rather than judgmental responses. There are no items for which short answers are not meaningful.
- There is a periodic review of reporting by individual hospitals. Those institutions consistently reporting poorly are notified and later visited to iron out flaws in procedures. Items answered poorly by most hospitals are reviewed for reconstruction.
- For birth certificates of doubtful character, a form letter is sent to the hospital of birth asking a recheck of data. Also, information on a sample of birth certificates is matched periodically with data in corresponding hospital records.

Interpretation of the data for identifying unmet needs is still in an exploratory stage, they said. It is already clear, however, that the neonatal mortality for live births in which mothers received no prenatal care was about 2½ times as great as for all live births. Low economic status was not a factor, since similar proportions were found in figures from a municipal hospital limited to the medically indigent.

Prematurity, rather than complications of pregnancy, was the major factor in neonatal deaths where prenatal care was lacking, they found. Of all mothers with neonatal deaths, 41 percent had pregnancy complications. But among such mothers who had no prenatal care, only 23 percent had pregnancy complications.

Values Human Judgment Above Punchcard System

Punchcard evaluation systems are highly useful, but they are no substitute for personal judgment, commented three members of the Philadelphia Department of Public Health.

P. W. Purdom, director, and Dr. Morris A. Shiffman, chief of milk and food, division of environmental health, and Dr. F. Herbert Colwell, director of the office of statistics and research, made this remark in connection with an evaluation of their activities in food sanitation.

They offered two general observations on evaluation. First, no method of evaluation will serve all purposes, and second, there is a tendency to produce more data, tables, and charts than can be analyzed, obscuring thereby the important facts.

In accord with these observations, they have developed three evaluative systems using routine records, time studies for personnel in the field, and sampling studies of fieldwork. In addition, they said, they have reduced and simplified the procedures of collecting data. For example, they pointed out, a punchcard for each inspection is unnecessary; a random sample is sufficiently accurate for evaluation and reduces the processing of data by 80 to 90 percent. Furthermore, they found that comparisons of data on an annual basis showed trends more reliably than comparisons on a monthly basis.

The value of coding all time spent on field visits, they said, lies in the accuracy with which unit and program costs are determined for budgetary purposes and personnel productivity for management purposes. But, they cautioned, time measures effort, not accomplishment.

They also observed that it is impractical to evaluate some activities. For example, a pure food education campaign cost $5,000. A scientific evaluation of the campaign's effectiveness would have cost $35,000.

Medical and Nursing Care . . .

Health Service Coordination Is Theme of Administrator

From a world perspective, one cannot help but observe a trend toward more and more socially organized and financed health service, stated Dr. Milton I. Roemer of Cornell University, emphasizing that this is an observation, not an advocacy. If valid, this observation means, he said, that the need for health service coordination at the local level will become more and more manifest, both to the technicians and to the public.

Roemer, director of research at the Sloan Institute of Hospital Administration, strongly supports "unified health administration in general and health department participation in medical care programs in particular." He believes that such arrangements are most likely to incorporate prevention into day-to-day medical care administration and to give appropriate emphasis to the various health needs.

Also, Roemer maintained, unified administration can permit use of the highest caliber administrative skill at the lowest total cost; it can strengthen the competitive position of health services in the arena of government and in the larger arena of total national goods and services that must be financed; and, most important, it allows individuals to be served as whole persons.

Four Administrative Patterns

In examining health service organization, with particular attention to relationships between public health and medical care administration, Roemer grouped countries into four categories, according to their predominant administrative pattern: free enterprise, social insurance, public assistance, and universal service.

In the free enterprise system, which is predominant in the United States, Canada, and Australia, the health department, particularly the local agency, tends to concentrate heavily or exclusively on administration of preventive services, Roemer said. Health insurance is administered mainly by voluntary societies; general hospitals are usually controlled by local voluntary groups; and health centers are ordinarily buildings for housing health departments, rather than places for ambulatory health care.

Countries of western continental Europe, Japan, and Israel provide most medical and hospital services for most of the population through social insurance systems. Physicians giving home and office care remain in private practice and receive fees from the insurance funds, but hospitals are predominantly governmental, under local or provincial authorities, with most medical personnel employed by the hospital administration. (Israel, with its salaried insurance physicians in health centers, is exceptional.)

Under the social insurance pattern, Roemer pointed out, the health department has little connection with administration of the health insurance funds, which are usually supervised by the ministry of labor or of social welfare. Some social insurance institutions have started their own preventive service, while in Scandinavia salaried district health officers provide medical care for the rural population.

Hospitals come under much greater public health supervision where social insurance of medical care applies, Roemer observed. Typically, he said, the health ministry has a division for hospital supervision, and the provincial health officer is responsible for operation of all public hospitals in his area.

The public assistance pattern is found principally in Asia, Africa, and Latin America, stated Roemer. For the majority (but not all) of the population, medical services are provided free by the government and financed from general revenues. Most of the services are given by salaried personnel working in hospitals, dispensaries, or health centers.

The administrative pattern in these countries, Roemer continued, vests wide authority in the health department. The national health ministry is ordinarily responsible for all curative as well as preventive services; the provincial and district health agencies usually administer the hospitals and also provide ambulatory medical care.

For the relatively small middle and upper classes in the cities there are private hospitals and private physicians, Roemer observed. He noted also, that the health insurance idea has recently been spreading in Latin America, particularly in Chile, where 70 percent of the population is now covered.

The Soviet Union and other communist countries, Great Britain, and New Zealand were classed as universal service countries. Virtually complete medical care is provided as a public benefit for all persons. Almost all hospitals are owned and operated by the central government; almost all personnel are under contract with the government and are paid with funds derived mainly from general revenues.

In the Soviet Union's scheme, Roemer reported, the health ministry has authority over all preventive and curative health services, and all personnel are on full-time salary.

In Great Britain and New Zealand, the focus of authority in the health department is less sweeping. At the national level, the ministry of health does indeed, Roemer stated, have full authority, but at lower levels, other bodies than the health department have responsibilities. Hospitals and specialty services are administered by regional boards, and ambulatory care, by local executive councils, both of which are responsible to the national health ministry. The local health departments provide traditional preventive services, along with certain auxiliary curative functions.

Significantly, Roemer said, the need for coordination of all these

activities at the local level is one of the British National Health Service's most pressing needs.

Train Nursing Home Staffs In Rehabilitation Skills

Training in rehabilitation given the staffs of nursing homes in a demonstration project in Illinois benefited approximately 90 percent of the patients, stated John A. Hackley, coordinator, rehabilitation education service, Illinois Public Aid Commission, Peoria.

He reported on the 3-year undertaking, begun in February 1957 and supported primarily by a grant from the Office of Vocational Rehabilitation as well as State and private foundation funds. Generally, 5 percent of the patients indicated potential for referral to vocational rehabilitation, 25 percent were discharged or were pending discharge from nursing homes, and 60 percent increased their ability for self-care and independence within the home in the course of the project. Attending physicians did not feel that 10 percent of the patients could benefit from the rehabilitation services.

The training program was designed to determine the rehabilitation needs of patients, how much can be accomplished by training existing staffs and enlisting the cooperation of local physicians and others in the community, what kind of training will give the staffs knowledge of rehabilitation techniques and a philosophy of physical and vocational rehabilitation, and the kinds of teaching materials that will increase staff competence in rehabilitation, Hackley said.

To participate in the project, nursing homes must join voluntarily, be currently licensed by the Illinois Department of Public Health, have a full-time registered nurse or licensed practical nurse giving nursing supervision, and have patients receiving public assistance. Approximately 20 percent of the State's eligible nursing homes applied for the rehabilitation training. The two research-demonstration teams have completed work in 24 homes, ranging in size from 17 to 236 beds.

Team Approach

A team consisting of 2 rehabilitation nurses and 1 occupational therapist spends an average of 6 weeks in a nursing home. A daily 1-hour lecture is given for the entire staff; team members devote the remainder of their working hours to demonstrations, return demonstrations, and bedside work with individual staff members.

The team emphasizes the obligation of the nursing home to help define the patient's needs in the home and after discharge. It encourages the administrator or owner to work with agents in the local community to develop resources for comprehensive services to the patient and his family.

Through this approach, the administrator and his staff receive similar training; the staff can translate the training to the kinds of patients they routinely serve; the setting provides additional opportunities for recognizing and dealing with the motivation of the patient; the training team can demonstrate how the philosophy of rehabilitation must permeate every nursing activity; and physicians, who must prescribe rehabilitation for a patient before it begins, receive further interpretation of the nursing home's services.

The nursing home personnel, Hackley observed, developed a new motivation from the improved morale and health of the patients and a change in attitudes that attend improved technical skills. During monthly followup visits by the training team, they were eager to demonstrate gains their work had achieved with newly admitted patients. At first, the nursing home personnel were disappointed at the slowness with which long-term patients responded to rehabilitation services.

Too few administrators and medical personnel appreciate the value of nursing care in rehabilitation, Hackley concluded. Rehabilitation is not the job of the rehabilitation center, the public assistance program, or the health department alone. It demands the coordinated effort of the patient, his family, the physician, public and private agencies, the hospital, nursing home, the day care center, and the sheltered workshop.

The rehabilitation service, which has been designated as a prototype by the Office of Vocational Rehabilitation, will be continued by the Illinois Public Aid Commission after the termination of the grant in December 1959. One State agency is duplicating this service and several other agencies in other States expect to undertake similar training, Hackley reported.

Improved Service Achieved With Managing Physicians

For a group of 76 "multiple hospital admission" patients referred to a managing physician, the annual hospital admission rate has been reduced by 44 percent and the annual rate of hospital days required, by 48 percent, reported Dr. Allen N. Koplin, Richard Hutchison, and Dr. Bruce K. Johnson, all with the United Mine Workers of America Welfare and Retirement Fund, Birmingham, Ala.

The key factor in these reductions is believed to be the definitive medical care and patient satisfaction achieved by the managing physician, they declared.

The managing physician service, in which selected patients are given special attention, was established by the UMWA Welfare and Retirement Fund in the Alabama area in 1956. The action followed a study of 18 patients admitted to hospitals 20 or more times in 4 years. The average number of admissions per patient for this group was 28 and the average number of doctors per patient was 6.

Despite the fact that all 18 patients had been seen by a board

certified specialist, not one had a clear understanding of the medical diagnosis and three were incorrectly diagnosed as neurotics, Koplin and his colleagues stated. The group of experts conducting the study concluded that the multiple hospital admissions were related to socioeconomic difficulties and to the lack of a satisfactory patient-physician relationship.

The medical care plan of the UMWA Welfare and Retirement Fund provides hospitalization, medical and surgical care during hospitalization, and office care by specialists. Actually, with an average of only 1.9 admissions per person in a 5-year period, multiple hospital admissions appear to be a small problem among Alabama beneficiaries, they remarked.

At present, a patient being admitted to the hospital for the third time in 12 months or the tenth time in 5 years is a candidate for referral to a managing physician. To date about 350 such multiple admission cases have been selected for review, and 300 of the patients have been referred.

A basic feature of the managing physician service is the generous amount of time the physician spends with each patient. About 2 hours is set aside for the first visit, of which 60 to 70 minutes is spent in conference. The physician seeks to determine not only the patient's symptoms but his opinions or feelings about his symptoms. He strives to maintain an attitude of sincerity, respect, sympathy, and objectivity. Above all, the conversation is unhurried, and the physician avoids emotional reactions.

Following the conference, the patient receives a complete physical examination and indicated X-rays, consultations, and laboratory tests, and during this same visit, he is given a preliminary summary of the findings. At the end of the visit, the patient is promised continued care and given an appointment to return for a review of progress.

Three physicians serve as managing physicians. They are in practice by themselves, but are able to obtain consultations, X-rays, and laboratory tests easily and quickly because they are located in a building in which there is a clinical laboratory.

The apparent success of the managing physician service, Koplin and his associates said, suggests the need for further investigation of the influence of the scope and quality of medical service on multiple admissions and other hospital utilization problems. He would like to see a study, for example, of a managing physician service combined with comprehensive group practice care.

VD Control Among Youths Rated Priority Job

Public health nurses should give high priority to the venereal disease problem in family and school health services, according to E. Alice Clark, chief nurse consultant, Venereal Disease Branch, Communicable Disease Center, Public Health Service.

Her recommendation was based on statistics showing that gonorrhea ranks second and syphilis fourth among notifiable diseases in the United States, and that teen-agers and young adults comprise more than half of the infectious venereal disease victims. She ascribed 50 to 60 percent of these infections to casual relationships and another 25 to 30 percent to steady relationships short of marriage.

Equally disquieting, Clark indicated, are increases in primary and secondary syphilis in 23 States and late latent syphilis in 19 States in 1958, even though there was a decline in all syphilis for the Nation as a whole. She attributed today's latent syphilis to casefinding failure 4 or more years ago. Currently, there are an estimated 1.8 million persons with inadequately treated or undiscovered syphilis, she said.

Pointing to the gap in epidemiology created by a decrease in public diagnostic and treatment facilities, Clark cited the necessity for health departments to provide epidemiological services for venereal diseases to private physicians similar to those offered for other major communicable diseases. She advised continuous application of control measures with emphasis on casefinding in high-incidence and high-prevalence population groups.

Within this framework, the general nursing service will be called upon more and more to assume responsibility for venereal disease control, she declared. In many agencies the nurses already include venereal disease epidemiology in their work, and in others plans are being developed to integrate venereal disease activities into a comprehensive communicable disease control program.

To carry out such functions, Clark concluded, the nurse must have a sound knowledge of the medical, public health, and epidemiological aspects of venereal disease. She must also understand that the venereal disease patient is an ill person, as much in need of medical and nursing care as the patient with poliomyelitis or tuberculosis.

Ill, Aged, and Disabled Need Homemakers

Illness or disability in a family is the main reason for the need of the services of homemakers, according to a 1958 survey by Maryland Y. Pennell and Lucille M. Smith, Division of Public Health Methods, Public Health Service.

Of 2,188 households in 32 States and the District of Columbia served by homemakers during a 1-week period, the largest proportion, 41.2 percent, were families with children requiring service because of illness in the home. Usually, care was provided for children because the mother was ill, but sometimes illness affected both children and parents.

The second largest group to be helped by a homemaker, 32.0 percent, contained an ill or disabled

person of advanced age at home. About one-eighth of such families also had a younger adult ill at home. About one-half of this group of households consisted of single, aged persons living alone.

In 16.7 percent of the households served, care was provided for well children, but the mother was usually absent, either dead or hospitalized. Households with illness of adults under 65 years of age accounted for 10.1 percent of those assisted by a homemaker. In the last instance, the homemaker enabled the patient to remain at home during convalescence or a chronic or terminal illness, Pennell and Smith observed.

The housekeeping tasks most commonly performed by the homemakers were house cleaning; laundry; planning, preparing, and serving meals; and marketing and errands. Activities included sewing and mending, reading aloud or playing games, and even assisting children with schoolwork. On occasion, the homemakers helped a family to move. In practically all families the homemakers gave personal care to children or to ill or aged family members.

For about half the families with persons ill at home, the homemaker provided at least one service directly for the patient. While some agencies encourage the homemaker "to do things for the patient," a few do not permit them to perform any service that involves direct contact with an ill or disabled person, Pennell and Smith reported.

They noted that one-tenth of the families with ill or disabled persons at home were not receiving services from either a physician or a nurse, and they questioned whether sufficient attention is being given to the health needs of these families.

One-third of the families with children were given about 40 hours of the homemaker's time and one-third of the adult families about 8 hours during the week. Only a few households without children were given as much as 40 hours.

At present, Pennell and Smith reported, about 150 agencies provide homemaker services, engaging about 1,800 trained homemakers. Of the families in the study, 52 percent received services through voluntary social service agencies; 30 percent from departments of public welfare, through child welfare or public assistance programs; and the remainder, 18 percent, from independent voluntary homemaker agencies, visiting nurse associations, or health agencies.

Nursing Service Influenced By Changes in TB Practices

Fundamental changes occurring in tuberculosis treatment and casefinding are challenging some traditional practices, stated M. Estelle Hunt, chief nurse, Tuberculosis Branch, Division of Special Health Services, Public Health Service.

In attempts to adapt practices to advancements made since the advent of chemotherapy, many new approaches are being tried, she said, and we are continuing to move toward great events in the field of tuberculosis.

Reviewing the situation in tuberculosis today, Hunt emphasized the "wide divergence of practices" in regard to hospitalizing patients, duration of hospitalization, bed rest, use of special tuberculosis hospitals, protective measures, and casefinding.

Recommendations for bed rest, for example, vary from several months to "when the patient feels tired," Hunt noted. Length of hospitalization varies similarly, from as long as 2 years to as short as 3 months.

There is general agreement on the desirability of patients having negative sputum before discharge, she said, but there is disagreement as to other criteria.

In casefinding, emphasis is being placed on selection of groups expected to show a high yield, selection of the initial test (chest X-ray or skin test), and limitation of testing to numbers for which adequate followup is possible. Tuberculin testing is useful in selected instances, but at present it cannot be considered an alternate method of casefinding, Hunt observed.

The trend in hospitals is away from small isolated tuberculosis sanatoriums and toward the coordination of hospital services. In some States small sanatoriums are being closed, and one large tuberculosis hospital is being used for the entire State. In other States, the tuberculosis sanatoriums are taking patients with other pulmonary conditions and certain chronic diseases.

These changes and variations are bound to influence nursing, Hunt concluded. She believes, however, that they require adaptation of present services rather than initiation of new or different activities. She believes also that nurses must acquire an understanding of what is happening and nursing itself must identify the modifications needed.

Another consideration of utmost importance, she maintained, is the need for improved communication among all agencies and individuals concerned with the tuberculosis patient.

Communicable Diseases Invite Nursing Skills

Satisfactions derived from active participation in a program for protection against communicable disease are second to none of those provided in nursing, according to Mary R. Lester, chief, Nursing Section, Epidemiology Branch, Communicable Disease Center, Public Health Service.

Such a program, she explained, offers opportunities for individual initiative, teamwork, interagency cooperation, and community effort. It includes patient care, isolation and quarantine measures, prophylactic treatment, immunization, epidemiological investigations, improvement of environment, and individual and group education.

Her training in the requisite

sciences, experience in interviewing and developing interpersonal relationships, knowledge of her area, and community recognition of her functions make the nurse an ideal person to investigate communicable disease cases and outbreaks to find the source of infection and to help in preventing other cases, Lester said. The investigation is an integral part of patient care and family instruction.

Particularly significant are opportunities for strengthening professional relationships. Through tactful approaches, patient interpretation, and effective service, the nurse can often influence the physician or hospital administrator to appreciate, respect, and utilize the services of the health department, Lester maintained.

Discussing the seriousness of communicable diseases today, she pointed out that they cause 1 of every 12 deaths. Before age 35, they rank second as the cause of death, being responsible for as many fatalities as motor vehicle accidents, cancer, and heart disease combined.

Epidemiology . . .

Chronic Disease Programs Use Familiar Techniques

Chronic disease programs are not new to health departments, and neither are the requisite techniques of casefinding, followup, patient education, and patient services, stated Dr. Paul Q. Peterson, assistant director, National Institute of Allergy and Infectious Diseases, Public Health Service.

Tuberculosis, syphilis, leprosy, and malaria control have long been accepted as proper public health services, and State and local health departments have devoted funds and efforts to chronic disease control activities such as maternal and child health and dental health, he said.

The same administration and management, patient followup, and referral procedures are required for tuberculosis and diabetes. Patient education in chronic disease is based upon the same concept as patient education in maternal and child health. Crippled children's programs, dental health services, bedside care by visiting nurses, all activities familiar to public health, call for the same skills as services to the cerebrovascular accident patient, the arthritic, or the disabled aged, he stated.

Only the specific procedures for the detection of chronic diseases are new. Blood sugar tests in diabetes, tonometry in glaucoma, and cytology in cancer are employed whereas serologic tests are used for syphilis and tuberculin testing and X-rays for tuberculosis.

He attributed the insecurity about chronic disease programs voiced by many in public health and private medicine to recognition of the gross size and complexity of the problem, difficulty in accepting secondary prevention without hope of primary prevention, and resistance to the redirection of standard procedures and staff assignments and to the inclusion of new techniques in program activities.

Successful Programs

Peterson maintained that public health leadership and support are necessary in community chronic disease programs and described five such successful programs.

Chronic disease detection conducted by the District of Columbia Department of Health revealed significant findings in all but a small percentage of 5,000 screened from 1955 to 1958. And this health department's mass blood testing for diabetes identified 1.17 percent of the 96,366 persons tested as diabetic.

In Arizona, a staff of 8 persons, using 2 specially equipped buses, travels to population centers such as State and county fairs to screen groups of people. Chest X-rays, serologic tests for syphilis, blood sugar tests, and measurements of intraocular tension are offered.

Two county hospitals receive funds from the New Jersey State Health Department to employ a physiatrist, medical social worker, physical therapist, and occupational therapist for their restorative treatment units. A study of 188 admissions in one county revealed that the majority of the patients were improved and that many were discharged to return to the community, saving the cost of their maintenance, an estimated $400,000.

The Hartford (Conn.) Health Department is the medical coordinator in the community's home care program, purchasing from existing agencies the services needed by patients. The Hartford Community Council is custodian of the project funds and coordinator of its nonmedical aspects.

Nutritional practices in nursing homes were improved and a nutrition course for home administrators was started as the result of the Milwaukee City Health Department's survey of the food purchases by the homes and the food consumption of selected patients.

Peterson feels that health departments generally are neglecting health education, although they recognize the necessity for exploiting health education for casefinding and patient instruction. He also urged them to do research on the epidemiology of chronic diseases and in administration and program methodology.

Smokers Double Nonsmokers In Heart Disease

"After adjusting for age differences between smokers and nonsmokers, the reported incidence of coronary heart disease was more than twice as high among cigarette

smokers as among persons who had never smoked," commented Dr. William J. Zukel, of the Office of the Surgeon General, Public Health Service.

This finding emerged from a study in six counties in northeastern North Dakota in 1956–57, in which private physicians, the North Dakota State Department of Health, the North Dakota State Heart Association, and the Public Health Service participated. Dr. Zukel's co-workers were Dr. Robert H. Lewis, Dr. Robert C. Painter, Dr. Lloyd S. Ralston, Dr. Robert M. Fawcett, Philip E. Enterline, Alla P. Meredith, and Beatrice Peterson.

From the total population of 106,000 in six counties, a 10 percent probability sample consisting of 1,886 men 35 years of age and older was drawn and interviewed regarding their personal characteristics, habits, and occupation. During the following year, 228 cases of coronary heart disease developed from the total population of men 35 years of age and older; 160 of them had no previously diagnosed manifestations. They, or their survivors, were interviewed for the same factors, and in addition a detailed dietary interview was administered. This general interview and special dietary interview were also administered to an age-matched subsample of the 1,886 men initially identified, thereby providing controls representative of men in the general population.

Occupation seemed to be a factor in the different incidence rates obtained for smokers and nonsmokers. No appreciable difference was observed, Zukel said, between farmers who smoked and farmers who did not, but in other occupations the incidence rate of coronary heart disease was twice as high for smokers as for nonsmokers.

Moreover, Zukel pointed out, with regard to mild manifestations such as angina pectoris or coronary insufficiency, farmers and nonfarmers reported similar incidence rates. But the reported incidence of severe manifestations such as myocardial infarction or death "was twice as high among other occupational groups as it was among farmers." And this difference was observed in every age group above 35 years.

Heavy physical labor was found to be inversely related to the incidence of coronary heart disease. "Men whose usual occupation required no heavy physical work," Zukel said, "have an incidence rate more than three times as high as those whose usual occupations required some heavy physical work." Unfortunately, he added, the information obtained by interview on physical activity appeared to be unreliable, and additional study will be necessary to obtain more precise information.

In comparing the detailed dietary histories for 162 of the 228 coronary cases reported and for 324 controls, Zukel and his associates found that regardless of how the cases were defined there were no significant differences between cases and controls in mean caloric intake, total fat consumption, or other major dietary constituents. This uniformity of dietary intake between coronary cases and controls, Zukel said, does not necessarily mean that dietary factors may not be important in the development of coronary heart disease, but it does demonstrate the probable importance of factors other than diet in determining why, in populations on relatively high-fat diets, some people have coronary heart disease and others do not.

Several Factors Related To Heart Disease

Education, smoking, and cholesterol levels were found to be related to the incidence of new heart disease cases in Framingham, Mass., in the sixth year of followup. No significant associations were discovered for nativity.

In the Framingham study, which will extend for 20 years, the National Heart Institute is investigating factors related to the development of cardiovascular disease. Dr. Thomas R. Dawber, chief of the Institute's Epidemiology Section, worked with Dr. William B. Kannel, Dr. Nicholas Revotskie, Dr. Joseph Stokes III, Dr. Abraham Kagan, and Tavia Gordon in compiling and analyzing the sixth year data.

Nearly 5,000 adults, 29–62 years of age, who were free of coronary heart disease at the time the investigation began comprised the study group. The report was restricted to findings on men between the ages of 45–62.

As education increased, the incidence of coronary heart disease decreased, Dawber stated, adding that "even if allowance is made for the fact that younger men tend to have more education than older men, the trend remains unaffected." An excess incidence was confined to those who were graduated from but did not go beyond grade school, he said. These had a higher incidence, however, than those who did not finish grade school.

If all new coronary heart disease, excluding angina pectoris, is considered, Dawber pointed out, "an association of risk with cigarette smoking emerges, and this risk rises with the number of cigarettes smoked per day." However, he went on to say, "the mechanism by which smoking might be involved in the production of coronary heart disease remains obscure. There is no experimental evidence that smoking (nicotine) damages the blood vessels."

Dawber reported that in seeking some factor associated with smoking that might be important in the pathogenesis of the disease, a "most striking association" was discovered between the consumption of alcohol and the use of tobacco: as smoking increased, the amount of alcohol consumed increased, particularly in the lower age group. "Alcohol consumption per se, however, does not show any relation to the development of coronary heart disease," he said.

With regard to cholesterol levels and coronary heart disease, Dawber and his co-workers found the association strongest in young men; it seemed to disappear completely

by the age of 60. After analyzing the association between lipid level and risk of coronary heart disease, Dawber and his co-workers concluded that "the total serum cholesterol is associated with the development of coronary heart disease, the association varying according to age and sex."

In the examination of the geographic distribution of new coronary heart disease cases within the town of Framingham, 1 precinct was found to have a lower incidence than the other 7, and far lower than was expected (1 case out of 96 as opposed to 7.5 expected), but the investigators could find no explanation for the low incidence in this precinct.

A breakdown by nativity, the main groups being composed of native Americans of British and Irish ancestry and immigrant Italians, failed to indicate "any association between nativity and the risk of coronary heart disease," Dawber said.

Finds Mortality Rate Low Among St. Louis Jews

The mortality rate for Jews in St. Louis and St. Louis County, Mo., is nearly 14 percent lower than the comparable mortality rate for the total white population of the area.

Kurt Gorwitz, former director of the St. Louis Bureau of Vital Statistics, reported this finding following a study of all Jewish deaths (1,478) and stillbirths (25) which occurred during 1955–57, in comparison with the deaths in the total white population in the same period. The study used records of three firms found to handle virtually all funerals of persons of the Jewish faith in this area plus data on all other funerals where Jewish services were conducted.

Comparative data were shown for the total white population since Jews were found to represent less than 5 percent of this group and since age-adjusted mortality rates for the nonwhite population were substantially higher.

In the United States, Jews are believed to have a lower birth rate and to be somewhat older on the average than the comparable white population. This makes the disparity in the mortality rates even more striking, Gorwitz remarked.

Accounting for some of this difference in rates was the fact that both the estimated Jewish infant death rate and the estimated Jewish stillbirth rate are substantially lower than the comparable rates in the total white population. The annual Jewish death rate, Gorwitz found, was between 10.3 and 12.6, while the Jewish stillbirth rate was between 7.5 and 9.2. Among the total white population, the annual infant death rate was 20.7 and the annual stillbirth rate was 14.5.

For most causes of death, Gorwitz observed, the rates were considerably less for Jews than for the total white population: for accidents, 60 percent; cirrhosis of the liver, 72 percent; tuberculosis, 80 percent; syphilis, 29 percent; and suicide, 13 percent. Jewish rates were slightly lower for heart disease, cancer, and vascular lesions. They were substantially higher for diabetes and hyperplasia of prostate. The difference in the two cancer mortality rates is entirely accounted for by a much lower Jewish rate for the genitourinary site group. No Jewish deaths were found from cancer of the cervix. This, Gorwitz believes, may be due to the Jewish practice of circumcising the male infant.

In accidents due to motor vehicles or falls, Gorwitz found the same disparity that existed for the total accident figures. He felt that the difference in motor vehicle death rates may be partially due to "the general absence of alcoholism in our Jewish population," while the difference in falls may be due to more adequate care received by elderly Jews. No Jewish deaths were reported from acute alcoholism.

The mean age at death for Jews was 66.7; for the total white population it was 64.4. Data were not available, however, to compute age-specific death rates and life expectancy figures, Gorwitz said. He found that a larger percentage of Jews died between the ages of 45 and 84 than in the general white population while a smaller percentage died in all other age groups.

Two Out of Three People Have CVR Condition

Two-thirds of the people who died in Hartford County, Conn., in 1954 suffered from some kind of cardiovascular-renal (CVR) disease, according to Robert J. Keehn, biostatistician, and Dr. Henry Eisenberg, public health internist, Connecticut State Department of Health.

Out of a total of 5,162 death certificates for 1954, 2,810 gave CVR as the underlying cause of death, and 637 others mentioned CVR, Keehn and Eisenberg said.

In this study, by which the authors sought to describe the frequency of secondary CVR disease present at death and the prevalence of these diseases in the general population, some of their main findings were:

1. Beyond the age of 1 year, existing CVR conditions are as likely to be the underlying cause of death in one age group as in another. The proportion of secondary CVR conditions (deaths not caused by CVR diseases but mentioning them) was lowest in the age group 1–24, and highest at 75 years of age and older.

2. The proportion of underlying non-CVR deaths with mention of a CVR condition in a given age group is the same for males and females, while underlying CVR is relatively more frequent among males.

3. A higher proportion of underlying CVR deaths was observed in nonwhites than in whites for each age group beyond age 25.

4. The relative frequency with which CVR disease is given as the underlying cause of death is similar for native- and foreign-born white persons at all ages.

5. No difference was observed in the relative frequency of CVR deaths or secondary conditions of CVR when classified by population sizes.

6. Among deaths resulting from non-CVR diseases, but with CVR conditions frequently mentioned on the death certificate, were rheumatic fever, diabetes, hyperplasia of the prostate, appendicitis, ulcer of stomach and duodenum, and pneumonia. Rheumatic fever had the highest frequency of mention (100 percent) and pneumonia lowest (50.6 percent) of this group of diseases. Together, they accounted for 24.5 percent of the mentioned CVR diseases.

7. Diseases of the arteries and nephritis and nephrosis formed a higher proportion of secondary CVR conditions than of underlying causes of death.

8. The prevalence of CVR diseases in the general population of Hartford County was estimated to lie between 10 and 23 cases per 100 persons.

Keehn and Eisenberg believe that with a knowledge of these prevalence rates, heart disease control measures can be established "on a sounder program, personnel, and financial basis."

Uses Family Members As Epidemiology Controls

Use of family members as controls to ascertain the etiology of disease was discussed by Dr. Arthur S. Kraus, chief of the division of vital records and statistics, Maryland State Department of Health.

Kraus employs a sample of new cases of disease with a control group consisting of family members, during a specified period. A member is eligible for the control group if he is free of the disease at the beginning of the period.

After pairing afflicted persons with their proper controls, Kraus tabulates the pairs according to a physical or environmental factor that is antecedent to the occurrence of a disease and is presumed to be pertinent. A relative incidence rate is then estimated using the ratio of pairs in which the case has the antecedent factor and the control does not and pairs in which the case does not have the antecedent factor and the control does.

After presenting the theoretical constructs in such analysis, Kraus applied the method to the cases of heart disease which subsequently occurred in the Donora, Pa., population exposed to the 1948 smog. His findings confirmed and strengthened the previously noted association between acute illness during the smog and subsequently reported heart disease. Kraus speculated that the smog served primarily as a diagnostic screening test rather than as an etiological agent for subsequently diagnosed heart disease.

Kraus concluded that there are certain circumstances in which it is impossible or inadvisable to use the family control method. The method should be eschewed, he advised, when (*a*) the antecedent factors are indeterminable after the disease has been diagnosed, (*b*) there are too few pairs of cases and controls in which the two differ with respect to the antecedent factor under study, and (*c*) the disease occurs predominantly or only in one sex under those conditions in which sex is associated with the antecedent factor, and spouses are the only available family member.

The advantages of the family method, when it can be applied, Kraus said, are (*a*) relative incidence rates can be estimated from comparatively small samples, (*b*) certain sources of positive relationships due to nonetiological factors can be eliminated, and (*c*) it is comparatively easy to find new cases of a disease and controls among family members to yield an estimate of a relative incidence rate that can be generalized to other families.

Maternal and Child Health . . .

Fifteen Centers to Study Reproductive Failure

Fifteen research centers will join in an intensive epidemiological study of reproductive failure, encompassing 40,000 mothers and their children from pregnancy up to age 6 years.

Dr. Richard L. Masland, assistant director, National Institute of Neurological Diseases and Blindness, Public Health Service, described the collaborative project, which is supported by Federal grants.

Its objective is to develop a series of examinations which will permit an evaluation of the independent operable variables during pregnancy and also permit detailed, accurate differentiation of the types of abnormalities observed. Extensive, detailed information will be collected from the pregnant women, and their offspring will be observed and evaluated until they can be definitively categorized.

The evaluations in this prospective study will be based upon an extensive schedule of examinations, Masland explained. During the prenatal period data on the socioeconomic status, family history, and past medical history of both parents will be obtained, and gynecological and physical examinations and special serologic tests for virus infections during pregnancy will be conducted.

The process of labor and delivery will be observed, and pathological examinations made of the placenta and of any children dying at birth or during the course of the study. The neonate will be examined in the delivery room and periodically

throughout the stay in the hospital nursery.

The child will be given a psychological examination at 8 months and at 30 months to evaluate growth and development, a neurological examination at 12 months to screen for defects of the nervous system, a general pediatric examination at 42 months, and a final evaluation at 72 months which will include detailed studies of general physical and neurological status. In addition, interval histories of the child will be obtained every 6 months, Masland stated.

Since the 40,000 pregnancies may not result in a sufficient number of damaged children to yield significant conclusions, data on a larger number of such children are necessary. Information will be sought on other patients of the collaborating institutions and patients of other institutions and agencies in the localities of the research centers for this extensive phase of the project.

Masland asked for comments and suggestions on the methodology and organization of this phase, which is still being developed. Its success will depend to a considerable extent on the selection of key items of information required and on achieving methods of obtaining data from this extensive phase which are identical to, or at least comparable with, the same items derived from the intensive phase of the study, Masland declared.

Advocates New Concept, Prenatal Human Ecology

The concept of prenatal human ecology rather than pregnancy wastage should govern investigations of the influences upon acquired congenital anomalies, maintained Dr. Theodore H. Ingalls, professor of preventive medicine and epidemiology, University of Pennsylvania School of Medicine.

He feels the term pregnancy wastage is "scientifically a vast understatement" and that the main patterns of causation emerging make it clear that the study of congenital anomalies embraces a great body of human ecology, not merely the products of pregnancy.

We are but on the threshold of the knowledge we need to protect the health at birth of future citizens, he said. Today's proof that controllable maternal illness may distort fetal development stems mostly from clinical observations made in the 1940's of the impact of rubella on the conceptus when the infection is acquired by the mother during the first trimester of pregnancy, he stated.

Ingalls called casefinding the bottleneck in acquiring the necessary knowledge. Not only are clinical manifestations of deforming disease in the embryo hidden, but the final pathological consequences seem relatively nonspecific. Congenital cataract, deafness, heart disease, and dental defects are not pathognomonic of rubella; they may be observed in babies with no maternal history of antecedent illness.

Also direct biologic relations between mother and conceptus are involved in the interrelations which have virological, immunological, embryological, physiological, and purely obstetrical facets.

As an example, he cited Asian influenza, a disease whose teratogenic hazard is unknown. Not only does it present casefinding difficulties similar to rubella, but maternal infection has no visible pathognomonic signs.

In Pennsylvania, where the occurrence of selected kinds of anomalies have been recorded on birth certificates for a decade, there is no evidence of a cause and effect relationship between Asian influenza in the fall of 1957 and congenital anomalies reported in the babies born 7–8 months later.

But influenza cannot be acquitted on the strength of such data. Birth certificates do not show the true extent of congenital heart disease at birth, nor are all cases of mongolism, cataract, and the like discovered in the first days of life.

Furthermore, all anomalies cannot be lumped together in order to test reasonable hypotheses. So many variable causes produce so many variable effects that some isolation of both anomalies and factors to be studied is necessary. For example, it is quite possible that maternal infection with Asian influenza may result in congenital deafness, as rubella did in Australia, but not influence measurably the occurrence of cleft palate. We just do not have the requisite data to test such speculations, Ingalls said.

Congenital defects involve much more than infectious agents. Recent studies indicate that testosterone injections of the mother during early pregnancy may induce anomalies of the perineal and genitourinary structures. And antithyroid drug therapy and carbon monoxide poisoning may be teratogenic agents. A woman experiencing diabetes while the fetal islets of Langerhans are differentiating may be suspect of initiating a disturbance of sugar metabolism in her unborn baby that may show up in the future.

Other significant metabolic, gynecological, systemic, anesthetic, traumatic, and X-ray-induced disorders of pregnant women are at least suspect of carrying a risk for the conceptus. The list of agents, combinations of agents, and degrees of activity is long and the list of possible consequences is longer still, Ingalls stated.

The appraisal is a challenge to medicine as much as to preventive medicine and public health. Every mother is an incubator for her own baby; gynecological and obstetrical techniques and knowledge should be applied to evaluate thoroughly pregnancies which result in the birth of deformed children, he declared.

Planned Parenthood Service In North Carolina

Over the past 21 years, a planned parenthood service has demonstrated its value as an effective part

of the maternity care provided in public health clinics in North Carolina, stated Dr. J. W. R. Norton, director, Dr. J. F. Donnelly, obstetric consultant, and Anne Lamb, nursing consultant, North Carolina State Board of Health.

Although the maternal, prenatal, and late infant mortality rates for the State began to decline before 1937 when planned parenthood was added to maternity care in the clinics, the service has been a factor in the decline, according to the authors (see chart).

They described some characteristics of the service available in clinics in 74 of 100 counties in the State. The service is directed toward the production of healthier offspring who have a greater chance for survival and a greater opportunity of reaching their full potentialities by the spacing or the prevention of pregnancies because of medical indications or socioeconomic considerations, usually both.

Since its inception, the planned parenthood service has won acceptance quietly, without fanfare. After the service has been explained to and approved by local health departments and county medical societies, county boards of health accept or reject it as a part of their maternal and child care.

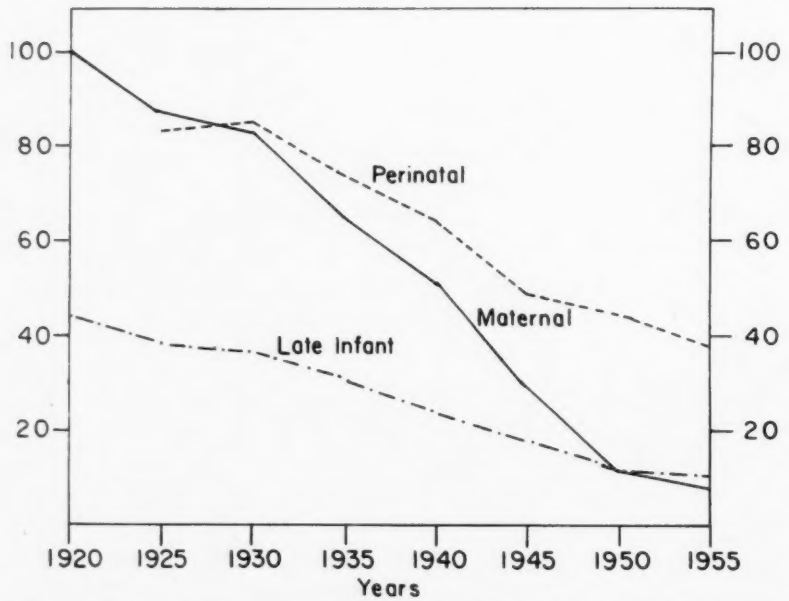
Methods of providing the service vary. The patient may be referred to the staff of a hospital or outpatient department or to a private physician, or the health department clinic may provide the service under the supervision of its director or a private physician. Generally physicians and nurses have provided such services in a balanced maternal and child health program.

In recent years, 12 to 14 percent of the total number of women delivered in North Carolina have received prenatal care in public health clinics. In 1957 obstetrical patients averaged 3 prenatal visits per pregnancy, more than 40 percent returned for at least one postpartum visit, and nearly 20 percent were patients who had received instructions and facilities for spacing pregnancies.

The present practice is to discuss family planning during the prenatal visits so that by the time of the postpartum examination the patient has had time to think about it and reach a decision, the authors explained.

The planned parenthood services of the public health clinics in North Carolina are as much a part of the maternal and child health care as physical examinations and laboratory tests, the authors declared.

Maternal, perinatal, and late infant mortality rates in North Carolina, 1920–55.



NOTE: Maternal mortality rates per 10,000 live births; perinatal and late infant mortality rates per 1,000 live births.

Twigs Bent at Home Before School Begins

To prevent school children from developing behavioral disturbances, Dr. Ella Oppenheimer, chief, and Margaret R. Mandel, consultant in psychiatric social work, bureau of maternal and child health, District of Columbia Department of Public Health, advocated adding social casework and psychological and psychiatric counseling to the basic pediatric and public health nursing services of child health clinics.

In a study of 60 school children, 32 showed evidence of emotional disturbance in the preschool period, 20 in kindergarten, 5 in the first grade, and 3 in the second grade.

Because of their disturbed behavior the children had been referred to the psychiatric, diagnostic, and counseling clinic of the school health services. The clinic, a limited pilot project staffed by a part-time psychiatrist and a full-time social worker, served school children with emotional problems.

The children ranged in age from 5 to 17 years; 41 were boys and 19, girls. Factors of organic origin, which could have been detected in the preschool period, contributed to the disturbed behavior of 14.

Among 18 illustrative case histories cited, 15 children had disturbed relationships with parents, siblings, peers, and teachers. In 9 cases parents had severe marital problems, in 9 the father was absent from the home most of the time or was a weak masculine figure in the family, and in 8, mothers were weak

and inconsistent in disciplining the children. In all these cases, if the opportunity had been available, the underlying pathology and poor adjustment might have been identified before the child entered school, Oppenheimer and Mandel observed.

They felt that their findings corroborated the belief, widely held in the professions engaged in helping children in trouble, that emotional disturbances do not occur suddenly. If the difficulties of adjustment of school children are to be considered intelligently, emotional disturbances and their background of tensions in parent-child relations must be recognized and treated in the preschool period, Oppenheimer and Mandel concluded.

Otitis Media Prophylaxis Used for Indian Children

Regular doses of sulfamethoxypyridazine were an effective prophylaxis for otitis media in a study of 120 Indian children reported by Dr. Paul R. Ensign and Mabel Moran, of the City-County Health Department, and Dr. E. M. Urbanich, County Welfare Medical Center, Great Falls, Mont. A prophylaxis was sought because a large number of Indian children in the Great Falls area had draining ears and earaches.

For the study the dose rate, varied according to the child's weight, was ¼ to 1½ tablets or ½ to 2½ teaspoons of syrup each Monday, Wednesday, and Friday for approximately 6 months during the winter of 1957. Maximum age of the children was 11 years. The control group was composed of 130 children of similar ages on the welfare medical rolls of the county. Otitis media is defined as an infection of the middle ear resulting in draining ears or an earache of one night's duration.

Of those taking the medication regularly, 34, or the entire group, with no history of draining ears and 15 of 18 with such histories did not develop otitis media. Eighteen children took the medication irregularly; none had draining ears during the winter.

Nineteen children had otitis media during the period of the study. Of these, 12 stopped taking the drug at least 2 weeks prior to the onset of the condition, 3 took the medication regularly but already had mutilated or destroyed eardrums, 2 took the drug irregularly, and 2 did not take it at all.

The authors found that the drug successfully prevented otitis media in children with draining ears, provided the eardrums had healed, but was less successful with children whose eardrums were destroyed or badly mutilated.

Although 23 percent of the study group had histories of draining ears compared with 14.6 percent in the control group, in the period of the study only 6.6 percent of them had draining ears, compared with 15 percent of the control group, the authors stated.

Family Health Clinic Unifies Obstetrics and Pediatrics

A clinic, reaching entire families with unified obstetric and pediatric services and using the skills of many disciplines, not only gave high quality care but also provided a vigorous resource for staff development, stated Dr. Pauline G. Stitt, assistant professor of maternal and child health, and Dr. Joan Babbott and Dr. Eva J. Salber, Milton Research Associates in Maternal and Child Health, Harvard School of Public Health.

The special family health clinic, a pilot project at Boston Lying-In Hospital, attempted to minimize artificial separations in the health services provided for families during childbearing and rearing.

The care provided by the clinic was based upon these premises: that pregnancy, childbearing, and child rearing are a continuum; that these processes intensify difficulties and add new ones to daily existence; that the way in which these difficulties are met has an immediate and long-range effect; and that the services of the clinic should enable the family to master the crises of pregnancy and child rearing and derive strength from these experiences.

The clinic was open to mothers, fathers, and children and offered family-focused service. Obstetric, pediatric, nursing, nutrition, and social work services were provided to 116 families having their first babies and 25 of these families during subsequent pregnancies. A psychiatrist acted as mental health consultant for the project.

Obstetric and pediatric services were provided with considerable flexibility. Pediatricians participated in early prenatal care; pediatric visits began a month after the baby's birth and continued throughout the first year. Families saw 3 or 4 staff members per visit, and, as far as possible, were cared for by the same personnel throughout their clinic experience, the authors said.

All observations on a family were assembled in a single unit record. The staff also pooled information on families in preclinic and postclinic case conferences of the entire staff, in conferences between staff members and with the mental health consultant, and in administrative staff meetings.

The sharing of prenatal observations revealed from 6 to 40 pertinent clues per family, case analyses showed. Pediatricians were already well acquainted with the family when they started work with a newborn infant and thus could give custom-fitted counsel rather than general observations in dealing with behavioral situations and emotional disturbances. Warned by colleagues of impending family predicaments or present difficulties, they avoided unwittingly contributing to such situations.

The staff benefited from the association with persons of other disciplines. For example, pediatricians, collaborating with nutritionists, devised feeding practices geared

to a child's motor, social, and adaptive development. Pediatricians and nurses jointly reexamined their pediatric and nursing practices in terms of their experience in the clinic. The data, selective perceptions, and interpretations of the social workers helped other staff members comprehend more completely the child's place in the family milieu.

The psychiatrist supplied a mental health perspective of family life. While alert to signs of incipient trouble, he contributed chiefly by making others aware of signs of family strengths and in showing the staff how to use those strengths to build a healthy family life.

The multidiscipline approach also helped to efface stereotypes the members of one profession had of another and led to improved communication, the authors stated.

They suggested that such a clinic may be valuable in raising standards of care in maternal and child health programs. In addition to their services in the clinic, participants carry over into other functions the insights gained during the experience. Methods, to a varying degree, can also be applied elsewhere.

Sound Planning Basic In MCH Services

Three considerations in the orderly development of maternal and child health care were listed by Dr. Edward R. Schlesinger, associate director, division of medical services, New York State Department of Health.

These are services which utilize personnel and funds efficiently; gradual increase in the depth of those services; and restriction of frank experiments or demonstrations to projects that are likely to become regular services. He cited as an extreme example of unsound planning, setting up a modern premature infant care center in a locality where mortality rates are high among infants over 1 month of age. Services to insure safe milk and water supplies and instruction in proper infant care should come first, he said.

However, in these circumstances a modern premature center can focus attention on modern pediatrics in contrast to the conditions which led to the death of many full-term infants, Schlesinger added.

He contrasted the experimental demonstration, which tests new techniques or reevaluates existing ones and has a definite goal, with the service demonstration, which has a less definite objective or endpoint. A voluntary agency may demonstrate disease prevention or detection to gain support, but community acceptance may encourage the agency to continue the demonstration instead of switching its efforts to other health needs, Schlesinger said.

He described how a cooperative effort in New York State hastened the shifting of secondary prevention of rheumatic fever from voluntary to official auspices. For years, local chapters of the State Heart Assembly subsidized the prevention of recurrent attacks in rheumatic children. Only a few local health departments accepted State aid, made available a few years ago, to pay for drugs and services.

At a 1957 conference, State and local government agencies agreed that rheumatic fever prophylaxis should be an official responsibility. Since then, there has been a rapid shift toward health department support of secondary prevention.

Extending comprehensive demonstration programs in limited areas to an entire State is somewhat more difficult, according to Schlesinger. Ten years ago, a demonstration in premature infant care was started in two regions of upstate New York. Payment for care was envisioned as a means of improving care for premature infants throughout the area.

As the demonstration phase was concluded several years ago, premature infants were considered physically handicapped children under State law, and counties wanting premature infant care programs could obtain State aid. Although high standards in facilities and personnel were required for approval, all but one of the counties in the demonstration area elected to continue under State aid, and several additional hospitals were approved as premature centers.

Initially, spread of the program outside the demonstration area was slow because of the need to build community interest and the time required to renovate or construct premature nurseries and train pediatricians and nurses. But the program is gradually influencing a larger area of the State, Schlesinger said.

He concluded that selling communities on programs showing the greatest promise of results is more productive than developing services unrealistically to meet so-called "felt needs."

Child Orthopedic Clinics Surveyed in New York

Improved and broadened services to encompass early casefinding, medical and paramedical care, and efficient followup in 20 children's orthopedic clinics in New York City were recommended by Dr. Robert S. Siffert, senior orthopedic consultant, Margaret A. Losty, acting director, and Sylvia B. Snyder, senior social work consultant, of the bureau for handicapped children, New York City Department of Health.

In 1957 the authors, prompted by the steady decline in the inpatient census and the concomitant increase in the number of children being treated on an outpatient basis, surveyed 20 outpatient departments of the orthopedic services participating in New York City's crippled children's program.

The survey revealed the following needs: more closely integrated inpatient and outpatient care; strengthened medical service through increased attending and resident staffs in outpatient services; strengthened

pediatric care of orthopedically handicapped children; and more continuity of care by the same physician seeing the child on each visit. The authors also found that the professional nursing time assigned to outpatient services could be used more productively in counseling patients than in carrying on routine activities.

The small number of clinics (6 out of 20) making referrals to public health and visiting nurse services indicated the need to strengthen this aspect of home followup. Although all the hospitals had good social service coverage on the inpatient service, only one-fourth had social service workers present or easily available during clinic sessions. Not only strengthened social services but also a closer liaison between the doctors, nurses, and social workers in making a medical social plan for patients were indicated.

There were no followup methods in 12 clinics and only poorly functioning ones in 2. An efficient plan for followup is applicable to all types of service and is essential to a well-functioning clinic, the authors stated.

Suggest Changes

Adults and children were seen together in the same clinic in 10 hospitals. The authors suggested that if a separate clinic is not feasible, a portion of the regular clinic should be set aside for children.

This grouping would enable the pediatric staff to observe children with orthopedic handicaps more closely resembling those seen in a private pediatric office than those seen in the inpatient service.

The upper age limit for children varied from 12 to 17 years. The authors proposed that children's clinics accept patients up to 17 years, the age of termination of growth and osseous maturity.

All clinics visited had an appointment system but only two had time appointment systems. Specific time appointment systems had been found unsuccessful but divided sessions were very efficient. Sessions divided into early, middle, or late periods were recommended. In 13 of the 20 clinics, extra visits were necessary for X-rays. Only one hospital had a separate, adequate waiting room with good recreational facilities for children.

Based on the observations made during the survey of these 20 services, standards for orthopedic outpatient services are being developed by the New York City Health Department.

Pediatric Evaluations Of Indian Children

Pediatric evaluations of 214 Indian children of the Wind River Reservation in Wyoming indicated that their needs were similar to those of non-Indians of similar socioeconomic status, declared Dr. Georgia B. Perkins, medical director, and Gertrude M. Church, nursing consultant, Denver Regional Office, Children's Bureau, Department of Health, Education, and Welfare.

The pediatric evaluations included medical histories and social and emotional aspects of the child and his family as well as chest X-rays, detailed blood examinations, serologic tests for syphilis, rectal tapes, stool examinations, and a height and weight check of the children.

The evaluations, the authors declared, were more valuable to these families than multiple screening, because of the greater health education values that resulted and their greater validity in future health planning.

The families' cooperation and acceptance of the evaluations the authors attributed to previous visits by the public health nurse to explain the examinations and the followup. A review of medical, nursing, and social service records of the families prior to the evaluations was valuable, productive, and a good case-finding method, Perkins and Church noted.

The children, each accompanied by an adult, were members of 60 families; 50 percent were Shoshones, 48 percent Arapahoes, and 1.4 percent were of other tribes. They ranged in age from less than 1 to 12 years.

Followup Needed

The evaluations, performed by 7 non-Indian pediatricians, revealed that 201 children required some kind of followup. Dental care was indicated for 135, although such care was available to them at the clinic on the reservation. The low level of immunizations completed—99 children lacked DTP immunization, 135 smallpox, 142 poliomyelitis, and 107 Rocky Mountain spotted fever—suggested that well child supervision was needed.

Medical care of some kind was indicated for 137 children. Of these, 64 had ear and hearing difficulties, including 37 with otitis media; 23 had visual defects including myopia and strabismus; 19, orthopedic abnormalities; 9, congenital abnormalities; 16, infections other than otitis media or intestinal parasites; 16, metabolic, nutritional, or endocrine disorders; 5, convulsive disorders; 3, indications of possible tuberculosis; 4, indications of possible cardiac abnormalities; and 1, mediastinal mass.

The 212 rectal tapes and 70 stool specimens examined showed that 21.2 percent of the children had pinworm ova, and 20 percent had pathogenic intestinal parasites.

Generally the children were somewhat shorter, particularly the Shoshones who were considerably shorter and also lighter, than their non-Indian counterparts. Because of this difference, individual growth histories will be necessary until tribal data on height and weight are available, the authors stated.

Assistance with social problems is one of the greatest needs of the Indians, according to Perkins and Church. Although only six children were identified as having emotional difficulties in the pediatricians' interviews with parents, the authors felt that possibly more intensive

medical social work would reveal additional social difficulties.

Findings in family medical histories of significance to the children included 3 women who were possibly prediabetic, 1 family with both parents diagnosed as diabetic, 2 families with histories of rheumatic fever, 2 with an unusual number of deaths among siblings of the child examined, and 4 with untreated tuberculosis in the household.

The pediatricians, estimating the reliability of the data they secured, felt they had obtained fair or good pediatric histories on 78 percent of the children and poor histories on 21 percent.

The authors concluded that by offers of similar evaluations and followup services to other groups, adult Indians may be persuaded to cooperate in assessing health status and in public health endeavors.

Multiple Antigen Booster Proves Effective

A booster dose of a multiple antigen has proved to be extraordinarily effective in increasing poliovirus immunity to high levels, declared Dr. C. Dale Barrett, Jr., director of maternal, child, and school health, Detroit Department of Health, and Dr. Eugene A. Timm, research virologist, Parke, Davis and Company, Detroit.

A series of inoculations of the antigen, containing diphtheria and tetanus toxoids and pertussis and poliomyelitis vaccines combined and adsorbed on aluminum phosphate, were administered to 224 children drawn from the child health clinics of the Detroit Department of Health.

Beginning in July and August 1956, children 6 months through 5 years of age received 3 monthly injections of 0.5 ml. per dose, and infants under 6 months received 4 similar injections. Booster injections of the multiple antigen were given 15–18 months later to 52 of the 224 children. At this time a control group of 51 children of corresponding age range who, by history, had never been immunized with poliomyelitis vaccine, were admitted to the study and received a single 0.5-ml. dose of the tetravalent vaccine.

Antibody levels were determined from blood specimens taken prior to each injection and 2 weeks after the final injection in the primary series and the booster dose.

Prior to the first injection, 76 children had no demonstrable antibody to any type of poliovirus. Of these, 98 percent showed significant antibody response to type 2 poliovirus, 89 percent to type 1, and 69 percent to type 3 following the primary series.

Barrett and Timm found that the booster dose greatly enhanced the seroimmunological response to the poliovirus antibody and the response to the other components of the antigen. After the booster injection, more than 97 percent of the 52 children had high antibody levels to all three types of poliovirus.

According to the authors, this demonstrates that essentially all of the children benefited from the primary immunization, and that the antibody level demonstrable after the primary immunization cannot be the sole criterion for evaluating antigenic potency.

The relatively poor response in the control group of 51 children to the single dose of multiple antigen substantiates the conclusion that the marked response of those receiving the booster injections is truly a reinforcement effect, dependent on the primary series of inoculations, the authors stated.

Infants as young as 2 months of age responded to the primary injections with demonstrable antibodies to all antigenic components and reacted as well as the older children to the booster dose. After the fourth dose in the primary series, 80 percent of the infants exhibited significant levels of antibody with a marked improvement in the levels for each poliovirus type, compared with lower responses after the third dose.

No clinical reactions of any serious consequence were reported or observed, the authors stated.

Physical Fitness Held Not Sole Objective

Current emphasis on physical fitness is in danger of overshadowing the mental, moral, spiritual, and social fitness of the individual, stated Dr. W. W. Bauer, director of the bureau of health education, American Medical Association.

In accepting the William A. Howe Award of the American School Health Association, Bauer outlined a broad concept of fitness and suggested that mental, moral, spiritual, and social fitness deserve equal, if not stronger emphasis than physical fitness.

He noted a confusion between the concepts of health and fitness. "Can one be fit and not healthy?" he asked, and declared that he did not believe health alone constitutes fitness. Health can be passive, languid, mere freedom from disease. However fitness is inherently dynamic; it is hard to imagine a passively fit individual, he stated.

There is no question that health contributes to fitness, but can there be fitness in the absence of health? he asked.

He cited the celebrated epileptics Lord Byron and Julius Caesar, Chopin and Robert Louis Stevenson with tuberculosis, the alcoholic Stephen Foster, Lincoln with his black moods of depression, and Lord Nelson with but one arm and one eye as persons who surmounted disease and defects.

There have been demands for a series of exercise and achievement tests to measure the fitness of an individual, he said. Tests could be devised to measure physical performance. "It would, however, be the height of fallacy to assume that such a measurement of physical strength, endurance, and agility is any criterion of the total personality fitness of an individual to meet the challenge of living," Bauer stated.

He felt that the President's Council on Youth Fitness had been wise to resist demands for federalized testing standards and their routine, periodic application to all young people. Fitness, he maintained, belongs in the hands of the educators and physicians working at the local level who are deeply concerned with the health, welfare, and fitness of young people.

What is the measure of fitness, if it cannot be measured by any set of physical tests? he questioned. First we must ask, for what purpose do we desire fitness? Each person has individual aims. He may seek success in a profession, a business, a sport, or an art. These are but superficial goals, which although desirable, are far from all of life, Bauer declared.

To be loved by our relatives because we are lovable, to be esteemed by our fellow workers because we are estimable, to be valued by our contemporaries because of our worth, and to be mourned when we are gone because our absence is a real loss: these are the real objectives in living and the real measures of fitness, Bauer concluded.

Dental Care . . .

Dental Neglect Varies With Social Class

The role of social class in forming attitudes toward dental care was accented in a pilot motivational study sponsored by the American Dental Association and carried out by a specialized Chicago firm. B. Duane Moen, director of the association's bureau of economic research, described the study as a pioneer effort.

Since direct questions do not usually give valid clues to behavior, said Moen, the sample of 126 men, women, and children representative of a typical midwestern community were stimulated to talk freely by such queries as, "What have been your experiences with dentists?" Sentence completion and picture interpretation tests were other devices.

Moen gave these results, grouped according to accepted classifications of social status:

- The upper middle class, professionals and business executives, with characteristic foresight, values dental services to prevent tooth decay or to defer it if unavoidable.
- The owners of small businesses, minor executives, teachers, salesmen, and white collar workers comprising the lower middle class take the typically moralistic view that dental care is a duty. Attractive teeth are important as a social asset.
- Those in the upper lower class, skilled and semiskilled blue collar workers, with a recent income rise, appreciate dental care far more than those in the next lower category. The best opportunities for behavioral and attitudinal changes are here.
- Members of the lower lower class show the most dental neglect, but not because of lack of information. Tending to live for immediate gratification, they consider dental care too much trouble.

Although dental health education is effective, the study pointed out that ways are needed to motivate people to related action. There is little reward associated with dental care, but much punishment from neglect. "Motivational efforts are mainly negative," it was concluded.

Oral Debris Indicted In Dental Study

Persons with obvious oral debris have substantially more periodontal disease than persons with relatively clean mouths.

This finding was reported by Dr. A. L. Russell, National Institute of Dental Research, Public Health Service, and Dr. Polly Ayers, director, bureau of dental health, Jefferson County Department of Health, Birmingham, Ala., following a nonrandom socioeconomic study of 2,150 dentulous white and nonwhite persons, 15–74 years of age, in Birmingham.

In the periodontal examination of these people, each tooth was scored for dental caries and periodontal disease. In the latter instance, each tooth was graded on a scale based on the classical clinical signs of marginal periodontitis (inflammation, pocket formation, and loss of function). Among their other findings were:

- Periodontal scores become progressively lower as education increases.
- Periodontal condition is directly related to the degree of neglect (unfilled dental caries, for example) in both classes at all ages over 20. Disease was more severe as the degree of neglect increased.
- Scores were lower in those who enjoyed occupations high in prestige and income. For both white and nonwhite persons, the data suggest that education is more closely associated with periodontal condition than occupation is.
- There were no differences in the periodontal condition of white and nonwhite groups of equivalent socioeconomic status.

Russell and Ayers recommended that comparisons between white and nonwhite populations should be based on groups of equivalent socioeconomic status.

Untreated Cleft Palates Compare with Treated

Tentative conclusions on the biosocial effects of unoperated oral clefts were reported by Dr. Frank E. Law, Division of Dental Public Health, Public Health Service, and Dr. John T. Fulton, professor of

dental epidemiology, University of North Carolina.

Data on 124 native Puerto Ricans age 15 to 57 years were collected at 5 health centers. Of the 59 untreated subjects, 51 had cleft palates and 8 had clefts involving only the lip and alveolar process; 29 who had had surgical repair were included for comparison of treated and untreated cases, and 36 who had normal palates were included as controls for normal growth and speech of Puerto Ricans.

Law and Fulton said that the patients with unoperated cleft palates appeared to have developed well and their facial growth patterns were normal. Clinically the growth of the upper part of the face and of the dental arch was closer to normal in the unoperated than in those who had had early surgical treatment of the palate.

Better movement of the posterior pharyngeal wall during vowel phonation was indicated in the unoperated persons. These patients reported no more respiratory illnesses than the control groups, and although the turbinates were consistently abnormally enlarged, the eustachian tubes were usually patent and apparently functioning normally.

Individuals in the group had adapted rather well to speech difficulties, Law and Fulton declared. Patients with all types of clefts consistently omitted "k" and "g" sounds. Those with unrepaired complete clefts from the lip through the soft palate had near normal voice quality while those with a cleft of the soft palate only were most nasal. Speech of patients with untreated clefts involving the hard and soft palates seemed superior to the speech of patients with surgical closure of this type of cleft.

Study patients required more special assistance with hearing problems than normal individuals but less than surgically treated cases. Although social and emotional problems continue to plague these people, they reported that as children at home they were favored over their siblings and were protected by their teachers at school. The majority had had considerable difficulty at school, Law and Fulton concluded.

Asian Dental Differences Explained by Fluoride

The differences in decayed, missing, or filled (DMF) rates in three Southeast Asian groups apparently can be explained by the differences in fluoride concentrations in the enamel of their teeth. This epidemiological study of Chinese, Malayans, and Indians and Pakistanis, all of whom were Singapore national servicemen, was reported by Dr. F. McCombie, director, division of preventive dentistry, Health Branch, Government of British Columbia, Victoria.

Eleven dentists, McCombie said, examined 196 Chinese, 180 Malayans, and 73 Indians and Pakistanis with a mean age of 21.4 years. The Chinese demonstrated a DMF rate of 13.3, the Malayans 8.4, and the Indians and Pakistanis 8.9.

In attempting to explain the difference between the Chinese and the others, McCombie investigated the extent to which each group practiced oral hygiene and chewed Betel nuts, and also observed periodontal disease status and the attrition to their teeth. Although significant differences were found among the groups with respect to these factors, none of the findings explained the higher DMF rate of the Chinese.

In a concurrent study of the mean fluoride content of enamel in teeth of representatives of the three groups in Singapore, McCombie found that the mean fluoride content in enamel in Chinese (average age 20.7 years) was 20.1 ppm, whereas in Indians, Pakistanis, and Malayans (average age 22.6 years) the mean was 135.8 ppm.

The differences, McCombie observed, between the average fluoride concentrations in the enamel are considered as most likely reflecting the major cause of the differences between the DMF rates for these groups, the major cause likely being an increased fluoride concentration in the outer enamel.

Since the water supply on the island of Singapore had a fluoride content of less than 0.2 ppm prior to controlled fluoridation which began in 1956, foods are currently being studied for fluoride content to explain the differences among the groups studied, McCombie said.

Grants-in-Aid Boost Welfare Dental Care

In a broad scanning of developments in State welfare dental services, Azile H. Aaron, regional representative in San Francisco, Bureau of Public Assistance, Social Security Administration, described the nationwide lack of adequate dental care for children in State agencies before 1956. That year the Social Security Act was amended to give separate and added matching funds for medical care.

She commended the prepaid dental contract for statewide welfare services pioneered in the State of Washington in June 1958, in which roughly 22,000 persons, or 20 percent of those eligible, are served yearly. Although the plan does not give complete dental care, Aaron reported that it is providing statistics useful for further legislation.

The dental care project in California was described as the largest and, for children, the widest in scope. Most of the $2¼ million earmarked in State funds and matched by Federal money is for complete dental care of the 77,000 children, ages 7 through 12 years, in the aid to needy children program. So far, 21 percent of the eligibles, or 1,500 each month, have been treated, with average cost of about $76. Other recipients receive care only for acute or emergent conditions.

Emphasizing that public assistance aims at providing a minimum living standard for those who, for reasons beyond their control, cannot

provide for themselves, Aaron posed these questions:

- What constitutes minimum dental care essential for everyone and therefore for recipients of assistance?
- Is the program which is solely for emergencies pennywise and pound foolish?
- Do we know what added burdens inadequate dental care places on dependent children and on the disabled and the aged?
- Shouldn't the professions explore the effects of inadequate dental care on nutrition, speech, performance, and development of the individual's fullest potential?
- Do we need attitude studies of recipients, dentists, and the public to determine where we are and where we want to go?

Cinefluorography Facilitates Cleft Palate Therapy

Using cinefluorography with image intensification together with the sound spectroscope has proved invaluable in establishing presentable speech patterns for postoperative cleft palate patients, declared Dr. H. K. Cooper of the Lancaster Cleft Palate Clinic, Lancaster, Pa.

Interest at the clinic, he said, is focused on postoperative function of the structures involved because good physiological results do not always accompany a good anatomic closure of cleft palate.

The cinefluoroscope produces a moving picture which enables the therapist to study the physiological action of the pharyngeal muscles, soft palate, tongue, and lips. The sounds are reproduced simultaneously. The sound spectroscope converts the sounds of speech into a graph.

With this combination of devices, Cooper pointed out, the therapist is in a better position to diagnose the difficulties and offer a treatment plan for postoperative patients whose speech is faulty.

Study of the soft palate in normal function by "visible speech" proved that the greatest pharyngeal closure is always above the external tubercle of the atlas bone. Contrary to the theory that Passavant's pad is the point of greatest constriction of the superior constrictus muscle and that its forward movement is present in normal speech, cinefluorography showed evidence of this movement only in some instances where the palate is short.

Cinefluorography has been a decisive factor when redivision of the soft palate was considered. It has also helped to decide whether to operate further or to advise construction of a speech appliance for a postoperative patient. Placing the appliance with a speech bulb always above rather than opposite the point of greatest constriction, the location of which is no longer a matter of conjecture, results in a better voice quality as well as a better velopharyngeal seal without disturbing retention of the appliance, Cooper stated.

Food and Nutrition . . .

Taste, Odor, and Cost Balk Food Irradiation

Russia is the first country to permit the sale of an irradiated food, stated Dr. L. E. Clifcorn, manager, central division research department, National Can Corporation, Barrington, Ill.

At the Geneva Conference on Peaceful Uses of Atomic Energy in September 1958, the Russians reported that on the basis of tests conducted the U.S.S.R. chief of public health inspection had authorized the use as food of potatoes irradiated with a 100,000 rad dose to prevent spoiling. The British reported that the destruction of *Salmonella* in frozen eggs appeared to be their most promising and compelling use for food irradiation.

Before American food processing companies can offer irradiated foods to the consumer, research must disclose what foods may be benefited by radiation and whether the benefits are sufficient to carry in the early stages the higher capital and operating costs and the costs of educating the consumer to accept foods having new sensory characteristics and possibly new cooking requirements, Clifcorn said.

He also pointed out that Food and Drug Administration approval must be obtained before any irradiated food can be offered for civilian use.

Flavor and odor are the main problems, he said. The degree of off-flavor development is directly proportional to the radiation dose and can be controlled in some foods by irradiation in the frozen state, use of inert gas, or other techniques. For pasteurization treatment (200,000 rad or less) off-flavor is insignificant or less severe than for sterilization dosages, up to 4.5 megarad, required to destroy *Clostridium botulinum*. No residual radiation has been found in food even after it has been treated with 25 mev electrons.

Assuming food is to be irradiated at 2 megarad with a 50 percent energy utilization factor, a 10-kw. machine costing from $100,000 to $400,000 can treat 1,970 pounds of food per hour, Clifcorn said. The 10-year depreciation operating and maintenance costs are estimated at 2 cents per pound on an 8-hour single-shift basis. For sterilization at 4 megarad the cost is doubled. For low dosage treatment at 100,000 rad the cost drops to approximately one-tenth of a cent per pound, which is approximately the cost of steam-sterilization of the product of a single-line pea cannery. Low radiation doses are commercially the most attractive. Only expensive food

commodities can justify capital investment for sterilization by radiation.

From present accomplishments, Clifcorn concluded, it appears that the treatment of food by radiation will be used first in combination with other types of treatment, complementing rather than replacing the present conventional processes such as canning, refrigeration, dehydration, and antibiotics.

Advises Caution In Diet Appraisal

The recommended dietary allowances of the National Research Council, which were first presented at the National Nutrition Conference in 1941, are a valuable tool in making dietary studies and in food planning, said Dr. Esther F. Phipard, Household Economics Research Division, Agricultural Research Service, U.S. Department of Agriculture.

In studies of the diets of individuals, use of the recommended dietary allowances as a point of reference in analysis and interpretation provides a basis for qualitative evaluation of the individual's diet, and also facilitates comparison of diets of persons with different nutritional needs. Furthermore, averages per nutrition unit for different families or even for different population groups are directly comparable, provided the same dietary allowances and scale of relatives were used in their derivation.

The words used to describe or interpret dietary evaluations are extremely important, she said. To state that the nutrients provided by a diet meet, exceed, or fall short of the recommended dietary allowances or some proportion of them, she observed, is a factual statement based on calculations in which the allowance was used as a point of reference. On the other hand, description of diets as adequate or inadequate requires careful qualification. She deplored the fact that the recommended allowances have sometimes been treated as if they were precise, almost magic figures, as if to imply that any diet supplying less than the levels recommended in them indicates malnutrition. Such implications she said, have been seized upon eagerly by promoters of certain food supplements and other dietary nostrums.

Another use of the dietary allowances mentioned is in developing weighted per capita allowances to be used as a guide in planning food supplies for a country or any large population group, or for comparison with estimates of the nutrients available from the per capita food supply.

Caution is needed, Phipard advised, in drawing conclusions from these comparisons. Nutrient levels recommended in the dietary allowances refer to amounts to be ingested, whereas the nutrients calculated to be in diets or in food supplies may include quantities lost or discarded in distribution or in preparation for eating. Thus, the two sets of data may not be directly comparable.

Intelligent use of the recommended dietary allowances necessitates study of the text which accompanies them in order to understand how they were developed and what they stand for, she emphasized. They are designed for the maintenance of good nutrition in healthy persons, and they are subject to change from time to time as nutritional knowledge advances.

Says Hungry Nations Must Grow Food

Underfed nations must grow more of their own food, asserted Jean W. McNaughton, regional nutrition officer, Food and Agricultural Organization of the United Nations.

However well they are taught the principles of nutrition, McNaughton said, people cannot feed themselves properly unless the essential nutrients are available at a price they can afford. The nutritionist and the agricultural economist must work together in long-term agricultural programs to cope with malnutrition, she said.

The task of the Food and Agricultural Organization is to raise levels of nutrition and to help improve the production and distribution of food and agricultural products in member countries. Following are some of the FAO accomplishments described by McNaughton.

Lack of accurate, up-to-date information in every branch of agriculture and nutrition is one of the most serious handicaps to planning. FAO is helping set up or improve agricultural statistical services. It also supplies experts to train personnel of the country in dietary survey work. FAO committees on calorie and protein requirements have made recommendations which have been adopted by many countries.

Systems of land tenure, which affect some of the agriculturally advanced countries as well as those less fully developed, are frequently at the root of the food shortage. FAO has sponsored three regional centers for the exchange of ideas and experience about land use. The first center was in Brazil in 1953 for countries of Latin America, the second in Bangkok for the Far East, and the third in Iraq, attended by 12 Near East countries.

Improved types of seeds and livestock have been introduced into member countries. On the other hand, control of animal diseases is slow work. Owners of livestock have to be persuaded that diseases can be controlled. An example is the experience with rinderpest, for many years the greatest killer disease of livestock in Africa and Asia. The earliest FAO campaigns against it were in Ethiopia, Thailand, and Afghanistan. At first farmers hid themselves and their cattle when the vaccinators appeared. Not until vaccinations began to produce demonstrable results were the farmers converted. Now Afghanistan has been almost cleared of rinderpest and

progress goes on in the other countries.

Fish catches are swelled by mechanization of fishing craft and by introduction of new types of nets. But in many countries, even where the population needs protein foods, there may be little demand for fish, and FAO has given help with this problem in Chile, Yugoslavia, and Mexico. Handling and transport facilities of the country often are such that fish cannot be shipped inland without spoiling.

Kwashiorkor is a serious syndrome occurring in infants and young chidren whose diet after weaning does not contain enough protein. Since 1950, FAO, WHO, and UNICEF have been cooperating in a campaign against the disease. The three organizations also cooperate in setting up short training courses for nutrition personnel in member countries. FAO fellowships are awarded for study abroad.

Old Soldiers Never Diet

According to the Army basic standard, the minimum nutrient intake of the physically active soldier in areas of temperate climate should be 3,600 calories, while for troops engaged in outdoor activities where the prevailing temperature is subzero, the minimum should be 4,400 calories.

Dr. Theodore E. Friedemann, Dr. Herman F. Kraybill, and C. Frank Consolazio, U.S. Army Medical Research and Nutrition Laboratory, Fitzsimons Army Hospital, Denver, Colo., described the Army dietary.

The feeding of U.S. Army personnel is planned in accordance with minimal dietary standards based on the recommended allowances of the National Research Council and modified by special requirements of troops under operational conditions, they reported.

Since 1941 the procurement and serving of food to Army personnel has been prescribed in a master menu, published 6 months in advance and used Army-wide. The menu is planned to yield the basic standard nutrients after making a 15 percent allowance for edible waste. During 1957 the average total nutrients provided by the master menu were 4,195 calories, 131 gm. protein, 199 gm. fat, and 470 gm. carbohydrate. The vitamins and minerals in the menu are well above the levels recommended by the National Research Council.

In surveys conducted in four basic training camps, the average of nutrients the soldier consumed in the mess, at the post exchange, and from other sources was 4,265 calories, 131 gm. protein, 201 gm. fat, and 484 gm. carbohydrate. These results agree rather closely with the total edible nutrients provided by the master menu.

A review of military nutrition since colonial days shows that rations have undergone their most rapid changes since 1890, the authors stated. The main reasons for this, they said, have been acceptance of scientific advances in nutrition, altered conditions of warfare, growth of national and individual wealth, expanding production of certain foods, improved storage methods, and extension of transportation and distribution facilities.

School Health . . .

Some Facts of Life Not Widely Known

That the public is not adequately informed about human reproduction was concluded from a survey of high school and college students and adults in a wide range of socioeconomic groups.

Dr. H. Frederick Kilander, professor of education at New York University, who reported the findings, cited the response pattern for the question, "Can a prospective mother make her child more musical if she listens to good music?" Correct answers ranged from a low of 20 percent for a junior high school class to 80 percent for a group of teachers.

The two tests given were part of a larger study, begun in 1935. The Kilander health knowledge test, with 100 multiple-choice items including 10 on sex education, was given to 200 groups of high school and college students and adults. And the information test on human reproduction, consisting of 33 multiple-choice questions, all on human reproduction, was administered to 15 college and adult groups.

Kilander said that about half of the high school students, 3 out of 4 of the college students, and 8 out of 10 of the adults knew that the premarital blood test required in many States was for detecting syphilis, rather than gonorrhea, tuberculosis, or hemophilia.

On the whole, there has been a slight but continuous rise in the level of information during the past 25 years, with college students tending to improve more than high school students during the period.

Adult groups without education beyond high school or without college biological or health instruction tend to score below today's college freshmen, Kilander said. Young parents with high school and college education are better informed in sex education, have a more wholesome attitude toward the subject, and are more successful in presenting it to their children than their counterparts were a generation ago.

The tests also brought out that male high school and college students tend to be slightly better informed on questions about the female sex than the female students are about males. Male students also tend to know more about the anat-

omy and physiology of their own sex than females about theirs.

Kilander asserted that facts of human reproduction should be integrated into education for family living and into sex education to prepare for marriage and parenthood and to combat socially undesirable behavior.

School Services Needed By Handicapped Children

School systems should provide more educational services for some types of handicapped children and should make more use of medical specialists and health department and community facilities to evaluate these children, suggested Dr. Helen M. Wallace, University of Minnesota School of Public Health, and Dr. Helen M. Starr, Minneapolis Board of Education.

From the replies to questionnaires concerning the educational services available to handicapped children in 98 of the 106 cities of more than 100,000 population, the authors found that all 98 school systems provide for children with orthopedic, neuromuscular, or neurological conditions and for mentally retarded children. Ninety-six percent of the school systems provide for children with speech difficulty, 95 percent for the hard of hearing, 94 percent for the partially sighted, and 91 percent for children with rheumatic fever or heart disease. However, children with epilepsy or cleft palate and those who are emotionally disturbed, deaf, or blind, are less frequently provided for.

Wallace and Starr felt that the policy of admitting children under 5 years of age to public schools, which may benefit certain types of handicapped children, should be extended to the deaf, blind, hard of hearing, partially sighted, and certain groups of those with orthopedic, neuromuscular, or neurological conditions. Less than half the the systems responding admitted younger children with these handicaps.

The questionnaires revealed that admission criteria for retarded children varied considerably, with required I.Q. levels ranging from 20 to 50–75. Other factors, such as social adjustment, should also be taken into consideration.

Placement

The number of children in each of the various types of educational placement reported by the responding school systems is shown in the table. Schooling in hospitals and convalescent homes is confined mostly to the orthopedic group, and home instruction, to the orthopedic, rheumatic fever, and cardiac disease groups. Residential schools are used primarily for the orthopedic, deaf, and emotionally disturbed groups of children.

Ideally, according to the authors, all public school systems in the larger urban areas would provide for all types of handicapped children in regular class and special day class. Home instruction, special day school, and instruction in hospitals and convalescent homes would be reserved for certain children for relatively brief periods.

Admission and Review

Most of the communities reported having criteria for the admission of handicapped children to the public school systems. However, members of the various professional disciplines participated in establishing criteria in only 18 communities, and medical personnel were participants in only 7 communities. The authors suggested the participation of members of the health and welfare departments, vocational counselors, and social workers in setting criteria.

Wallace and Starr felt the health department should also participate in the review of applications for educational placement. In half the school systems, applications were reviewed only by the board of education, never by the health department alone, and only in one-fifth of the systems was review a joint function of the education and health departments.

A team reviewed applications in most communities; its members most frequently were a psychologist and a school administrator. The authors advocated greater use of nurses, teachers, school counselors, vocational counselors, and medical specialists such as cardiologists, pediatricians, ophthalmologists, otologists, and orthopedists.

The authors also saw a need for periodic review of placement and review prior to withdrawal from placement. They held that a yearly review of each handicapped child regardless of type of placement is a

Handicapped children in various types of placement in 98 cities

Handicap	Regular class	Special day class	Special day school	Special residential school	Home instruction	Hospital and convalescent homes
Orthopedic	3, 807	2, 330	4, 608	361	3, 774	3, 557
Rheumatic fever, heart disease	4, 065	484	593	67	755	210
Epilepsy	1, 373	153	103	0	117	0
Hard of hearing	2, 717	2, 021	355	14	2	0
Deaf	151	1, 478	1, 919	152	0	0
Partially sighted	674	3, 534	412	18	5	10
Blind	63	907	215	25	17	0
Cleft palate	554	115	9	0	0	0
Mentally retarded	11, 071	69, 017	5, 539	22	0	0
Speech	116, 880	38, 132	2, 373	7	0	0
Emotionally disturbed	1, 229	3, 528	3, 932	2, 407	125	10

minimum requirement and that more frequent reviews are preferable.

In 38 percent of the communities replying, review teams held personal interviews with the child and his family; 35 percent of communities did not provide such teams; and 27 percent did not answer the question. While recognizing differences of opinion as to the value of personal interviews, Starr and Wallace stated that considerable inappropriate educational placement occurs unless the child is seen by the reviewers.

In the 98 cities, such community facilities as a crippled children's clinic were rarely used in evaluating handicapped children. When well-developed evaluation and diagnostic services exist, it would be easier for the school system to use them than to attempt to duplicate them, the authors stated.

Orinda Study Favors Clinical Eye Test

The modified clinical technique was found superior to other methods of visual screening in cost and efficiency, during the longitudinal Orinda study which tested the vision of 1,000 elementary school children in California during 1954 through 1956.

The study, partly supported by U.S. Children's Bureau funds, was reported by Dr. Henrik L. Blum, health officer of Contra Costa County, Calif.; Dr. Henry B. Peters, associate clinical professor of optometry, and Dr. Frank Johnson, clinical instructor of optometry, University of California School of Optometry; and Dr. Jerome W. Bettman, professor of surgery (ophthalmology), and Dr. Victor Fellows, Jr., clinical instructor of surgery (ophthalmology), Stanford University Medical School.

During the study period, they observed, the proportion of children found to have visual defects rose about 1.6 percent per year with age. Children with such problems in age groups 5, 6, and 7 years amounted to 18 percent, increasing to 31 percent in age groups 13, 14, and 15. Also noted was a large shift toward more myopia by those already myopic and a trend toward myopia among some normal children. Only one-seventh of those referred to physicians had uncorrectable defects.

Blum and associates stressed harmonizing opinions and consolidating standards of local physicians for successful visual screening.

Outstanding recommendations were:

- The screening program in the community's elementary schools should be developed by a steering committee of public health and school representatives, ophthalmologists, optometrists, and parents.
- The modified clinical technique should be given all first-grade children and new entrants by a qualified professional examiner. Those passing should have annual Snellen tests.
- School health education should include formal work in visual health, designed also for parents' interest.

They described the county health department, which gives consulting services to schools and has faculty members of participating universities, as a coordinator and promoter of the research.

School Health System Studied in Brookline

A study of the school health program in Brookline, Mass., which in 1955 shifted control of services from the school system exclusively to direction jointly with the health department, was reported by Dr. Marjorie A. C. Young, coordinator of the study, and Dr. Leon J. Taubenhaus, director of public health.

One objective was to define and describe the functions of employees in the school health program. Initially, baseline data on school health policies and practices were gathered by Dr. Young through interviews and from records in the school system and health department. From these data, profiles of each of the eight elementary schools and of the whole system will be formed for comparison. Each profile will cover services, environment, instruction, and administration.

Interview questions were carefully designed, pretested, and revised to describe actual policies and practices without judgmental or value connotations. About 1 week was spent in each school. Persons interviewed numbered 121 out of a total of 335. They included all principals, school nurses, and chief custodians, as well as a 30 percent stratified random sample of all other full-time school personnel. Initial tabulation of the data have been completed, they said.

Among the side benefits from the study mentioned by Young and Taubenhaus, was the growing interchange of aid and ideas between school authorities and the health staff, reaching out into other community fields, such as the glaucoma screening program.

Sometime after 1960, they concluded, the interviews will be repeated to determine the extent and direction of change.

Many Reading Failures Of Nonvisual Origin

After examining more than 700 intelligent children with reading disability, Dr. George E. Park of the department of ophthalmology, Northwestern University, reported that only 19 percent needed spectacles.

The complex factors of the disability in mentally unimpaired children called dyslexia, are physical, psychological, social, and educational. In Park's opinion, the handicaps can be corrected in approximately 85 percent of the cases.

About four times as many boys have reading failure as girls, he said, speculating that this condition may express blocked sublimation of aggressiveness, notably stronger in boys.

Among medical factors, Park mentioned the importance of the thyroid gland in mental functioning in children. Twenty-seven percent of those in the study had hypothyroidism and 4 percent hyperthyroidism to a degree that therapy was indicated. Reflexes in 15 percent were decreased and 11 percent were exaggerated. Choreic symptoms were present in 6 percent.

Although half the children had borderline or mildly abnormal electroencephalogram records, none were severely abnormal. He cautioned that care must be used in interpreting these data, since such records occasionally obtain for normal children. Bone maturation studies showed 8 percent were retarded in growth for their age. Correlating blood counts of 200 of the children revealed a 27 percent neutropenia, said Park.

Stressing the link between hearing and language function, he remarked that 14 percent of the patients had had abscessed ears. Also, 9 percent had learned to talk late.

Enuresis, with an 18 percent incidence among the children, usually is coincident with other symptoms of personality disturbance that almost always occur in dyslexiac children. Even with enuresis and other disturbances present, causes of reading failure may not be pinpointed alone in conditions causing emotional stress.

Though occasionally dyslexia occurs in successive generations, Park believes that the characteristic is imposed usually by experience and very rarely by genetic factors.

Eye Defects Screened Before School Age

Neglect of preschool children with eye defects was criticized by Florence Cunningham, nurse consultant of the National Society for the Prevention of Blindness, New York City. Such neglect is especially serious for children with amblyopia, she said, because full correction may hinge on the start of treatment before age 6.

Following a detailed description of screening criteria and methods, Cunningham cited results of three mass screening projects in which the groups sent to physicians for eye care were, respectively, 85, 88, and 100 percent correct referrals.

Regarding current disbelief in the successful screening of children so young, she pointed out that a project in Schenectady, N.Y., has screened 60 percent of children in the 3 to 3½ year group, 74 percent from 3½ to 4, and 96 percent of 4-year-olds.

In different communities screening has started with the children of those attending adult education classes, at well-child conferences, in housing projects, and by letters to parents through the schools. The average referral rate for all children screened has been between 5 and 6 percent.

Public Schools Can Help Pupils With Eye Defects

Barely 11 percent of the estimated 78,000 partially seeing children in our public schools were receiving special help in late 1957. This was brought out by Dorothy Bryan, assistant director of special education of the blind and partially seeing, Illinois Department of Public Instruction, in a discussion of current approaches to teaching such children.

Rather than segregate such pupils in special schools or classes, she would enroll them in regular grades in public schools and provide special teaching only for activities needing close, intensive vision. Sometimes such aid is provided by an itinerant specialist.

In Bryan's opinion, the child can thus establish his school social status and, if his vision improves, return full time to regular classes.

Some States, such as Illinois, she said, offer guidance to teachers in schools unequipped for special services, dealing with each case individually. Large-type books and reimbursement for reader service are given.

She pointed out that these services had secondary value in providing a healthful school environment, such as proper lighting, well-printed books, and correctly designed seats.

Teacher Health Education Scanned in Washington

Schools must instill in today's children firm knowledge and interest in personal and community health, if rapid advances in medicine in the future are to be translated into good health practice.

This theme of a conference on preparing teachers for health instruction, held in Seattle, Wash., during March 1958, was reported by Catherine Vavra, health educator and lecturer with the University of Washington in Seattle. Most of the 47 participants were engaged in teacher education and represented 14 State and private colleges and universities in Washington.

Results of a questionnaire, Vavra said, showed that 13 of the responding 14 institutions offer prospective teachers a course in personal health, and 11, an added course in health instruction. Only 4 of these teacher education institutions require a school health course, although another 7 offer such a course as an elective. Only two have a faculty-student health council.

The School's Role

Conferees agreed that health and safety instruction in the school is not an end in itself but rather a bridge to a full life. This teaching must have a safe school environment and a program which helps the child shoulder responsibility for his own health and safety.

Included in the definition of a sound school environment, said Vavra, was a rich social-emotional atmosphere, with the teacher's awareness of individual differences and personality adjustments among the children, enthusiasm for their

interests, and maintenance of consistent behavior standards.

Recommendations

Among the conference recommendations were:

- Preparation of a State curriculum guide for health education at all school grades.
- Availability of health consultants on the district level to assist in improving health instruction.
- A careful, periodic reexamination of health instruction programs for teachers, especially regarding effective use of contributions from the several disciplines and from State, county, and community health agencies. The same holds for school agendas in health.
- Setting up organized methods for the constant, smooth absorption of new information and materials in school and teacher education programs.
- Careful planning of inservice education of teachers, so that they grow after teaching begins, under the leadership of principals and superintendents.
- A meeting, at least once a year, of representatives from teacher training colleges, the schools, and State health and education agencies, to consider teacher preparation for health instruction.

Finally, the need for health instruction courses for college faculty members was underscored, Vavra reported, remarking that the University of Washington is working toward a master's degree in health education.

Safety . . .

Local Sources Can Supply Accident Statistics

Existing indicators of local accident morbidity and mortality should be examined before a health department undertakes door-to-door studies, declared Dr. Charles M. Cameron, Jr., associate professor, School of Public Health, University of North Carolina, and safety consultant, North Carolina State Board of Health.

He questioned whether elaborate house-to-house surveys to obtain data on a community are necessary, especially in view of the health departments' shortages of funds and personnel and the difficulties of obtaining reliable, comprehensive information.

Cameron listed some sources of data in many communities. Within the health department, much useful information may be gleaned from death certificates, crippled children's clinics, school health programs, housing inspection records, and records compiled by nurses, sanitarians, and other staff members who routinely visit homes.

Other local sources of useful data include hospitals, fire departments, emergency squads, schools, industries, health insurance organizations, agricultural extension programs, and safety councils, agencies which have an interest in home or farm safety. Often, with some slight modification in record processing or tabulation, such data can contribute to the health department's accident statistics.

After describing some techniques developed in surveying accident morbidity, Cameron pointed out that these fact-finding activities require specialized skills and personnel not always found within the local health department.

For the average health department seeking to make a community diagnosis of home and farm accidents, tapping local resources should be the first step. The resulting statistical and epidemiological information may not be complete in every respect, but it will help to decide the treatment for the disease, he said.

Study Death Certificates For Accident Data

Local health departments may analyze death certificates for clues to accident prevention, asserted Albert P. Iskrant, chief of operational research, Accident Prevention Program, Public Health Service.

While he did not propose restricting epidemiological investigations of accidents solely to fatal accidents, he noted that approximately 100,000 deaths are caused by accidents each year and the data are available for analysis.

Study of death certificates reveals information about the age, sex, race, marital status, and physical condition of the accident victims, the agent causing the accident, and the environmental factors associated with fatalities. Epidemiological investigations need not be limited to these data but can be carried into many facets of the host, agent, environment, and their interaction, Iskrant stated.

Describes Characteristics Of Childhood Accidents

Accidents, as the leading cause of death among children, have not risen to the top of the list but rather have been uncovered, stated Dr. James L. Goddard, chief, Accident Prevention Program, Public Health Service.

He pointed out that in the last 55 years mortality due to contagious diseases dropped so phenomenally that improvement in accident fatality rates is scarcely noticeable. However, some 17 million children sustain accidental injuries in the United States each year, according to estimates based on the first 6 months of the National Health Survey, Goddard added.

He drew a profile of accidents

among those under 15 years of age. Thirty percent of the nonfatal accidents and 15 percent of the fatal accidents occur in this age group. Motor vehicle accidents cause 30 percent of these fatalities, drowning 13 percent. Boys have twice as many accidents as girls.

Accidents occur predominantly in the house, reach a seasonal peak in July and August and a low in February and March, and injuries are most frequently lacerations and head injuries. Burns and scalds are an appreciable proportion of all primary injuries only among those under 1 year of age.

Goddard cited the 200 poison control centers set up in the United States during the last 5 years as an example of current efforts to reduce childhood accident hazards.

Hospital Data on Injured Spur Preventive Measures

Selected data on 15,272 patients treated for trauma in 15 municipal general hospitals during 6 alternate months of 1957 were reviewed by Dr. Marta Fraenkel, medical program evaluation officer, New York City Department of Hospitals.

Indicating the clinical seriousness of their injuries, Fraenkel stated that 656 patients died in the hospital; of these, 224 died within 48 hours after admission. Nearly 6,000 patients required hospitalization of more than a week; 1,700 of these stayed more than a month.

The data, extracted from medical charts of the traumatic patients, were processed centrally as part of a project called the hospital morbidity reporting system. Such data, Fraenkel said, provide substantial information on the incidence of various injuries among people of given age and sex as well as on the amount of hospital care needed. She stressed the desirability of including information on the external cause of injury, which at present is not specifically recorded.

Trauma due to accidents, poisoning, or violence was the leading nonobstetrical cause for hospitalization. Traumatic patients, representing nearly 13 percent of all discharges and 16 percent of all nonobstetrical discharges, received a total of 239,000 days of inpatient care during the 6 months of the study.

More than 62 percent, 9,516, of the traumatic patients were male. Approximately 44 percent of the total and 55 percent of the nonobstetrical hospital patients were male. Of the traumatic patients under 15 years of age, two-thirds were boys. The excess of male patients did not subside until age 65.

Fractures were the leading type of injury; there were 5,506 fracture patients, an average of 30 admissions per day. Other numerically significant injuries were brain concussions, open wounds and lacerations, and poisonings. Least significant numerically were "superficial," head, and internal injuries, dislocations, and burns.

Variations by Age

Of 3,275 traumatic patients under 15 years of age, 39 percent were under 5 years; 34 percent, 5–9 years; and 27 percent, 10–14 years. This group comprised 20 percent of all children admitted. In the 5–9 age bracket, injuries accounted for nearly 28 percent of all admissions; a third of the boys admitted in this age group were traumatic.

Among children, the most significant injuries were brain concussions, fractures of the extremities, open wounds and lacerations, superficial injuries, and poisonings. Noteworthy for their relative prevalence among children, Fraenkel remarked, were foreign bodies in the digestive tract, aspirin poisoning, and lead poisoning.

High incidence of injuries among children has prompted a study to analyze the relationship between external cause and nature of the injuries.

Nearly 15 percent, 2,262, of all traumatic patients were 65 or over. Fractures, almost half of which were of the femur, accounted for 60 percent of all traumatic conditions in this age group, against 32 percent of patients under 65 years.

More than 100 aged patients are admitted monthly to the municipal general hospitals for hip fractures. This figure is particularly significant, Fraenkel pointed out, because of the length of hospital care required by such patients and because of the protracted, or even permanent, physical impairment that may result. Some conditions, she said, which are frequent among young people are of relatively little significance among the aged; for example, among those 65 or over, there were only 36 admissions for burns and only 18 for foreign bodies in the digestive tract.

Engineers to Discuss Air Pollution

The continuing challenge of air pollution is the theme of a meeting of the American Society of Mechanical Engineers, Pittsburgh Section, at the Penn-Sheraton Hotel, April 20–21, 1959. All public health workers are invited, to share in Pittsburgh's bicentennial celebration.

Hinsdale Health Museum

an Illinois community takes a dynamic approach to health education

(*David Lannes photo*)

A biology teacher on the museum staff explains to young visitors the exhibit showing normal and abnormal eyesight and correction of faulty vision. The museum usually conducts at least two such classes daily.

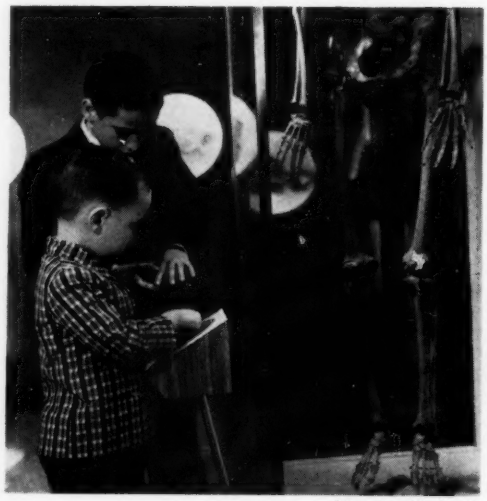
Dedicated to the promotion of better living through health education, 13 exhibits on the human body formed the opening show of the health museum in Hinsdale, Ill., in May 1958. The museum is housed in a wing of the Hinsdale Medical Center, founded by the Kettering Family Foundation of Chicago. About 34,000 persons visited the museum during the first 6 months.

Pushbuttons, telephones, flashing lights, and moving parts encourage visitor participation. Most of the exhibits focus on a single component of the body, such as the brain, the ear, and the eye.

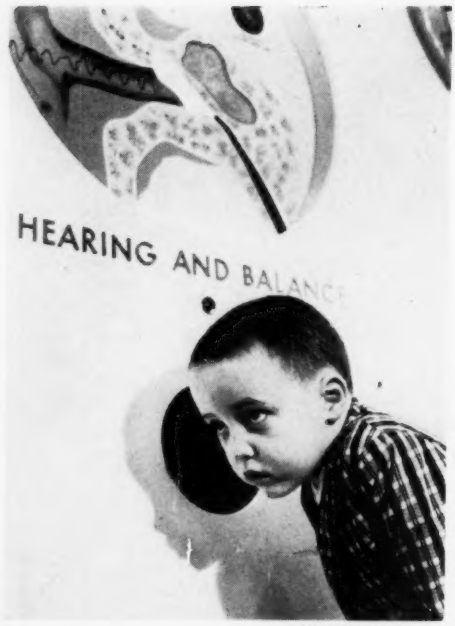
(*Rus Arnold photo*)

"You began as a single cell . . . " says the voice recounting the engrossing story of body cells. Designed especially for Hinsdale, the exhibit forms the museum's central motif.

Part of the exhibit on the structural systems is a skeleton that moves (right). A neighboring model is a male figure with muscles exposed.

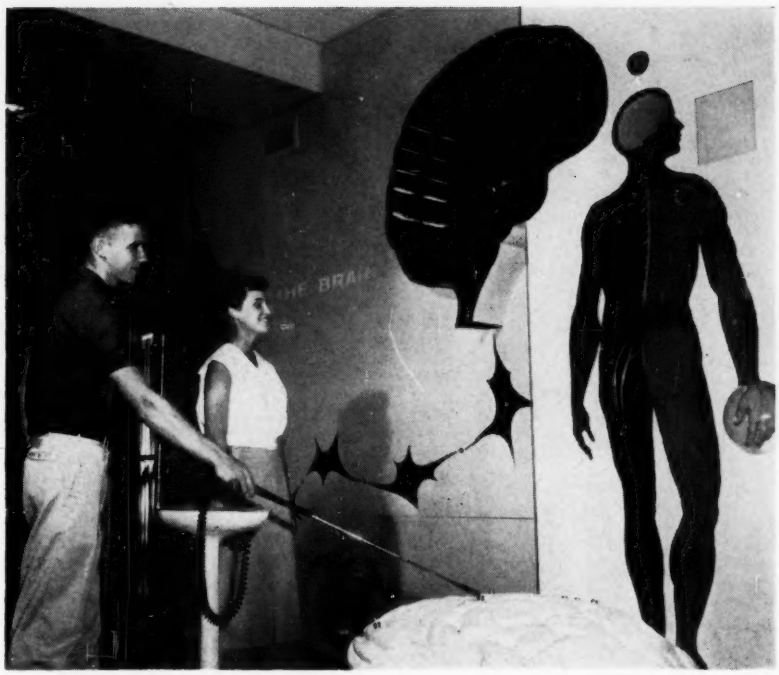


(*Rus Arnold photo*)



The phenomenon of hearing is demonstrated by means of a human "telephone receiver."

(*Rus Arnold photo*)



Students operate the control on a giant brain, especially constructed for Hinsdale. The unit presents what is known about the nature of nervous energy and thought processes.

(*Chicago Tribune photo*)

The comprehensive heart display shows both inside and outside of the organ, circulation, heartbeat, and an electrocardiogram.

(*Stephen Heiser photo*)

Other displays describe the body's structural systems, birth, and the coughing process. A transparent female figure, life size, in Plexiglas, contains organs and systems in distinctive colors, which are lighted as a voice on a synchronized sound track explains their functions. (A similar exhibit, pictured in *Public Health Reports*, March 1958, is installed in the Smithsonian Institution.)

The center's museum, health theater equipped with a film collection, and medical library are free to the public; they are maintained by the proceeds from rentals on medical center offices.

The museum schedule calls for close collaboration with schools in the area and with the physicians in the medical center.

Signs and Symptoms

of trends in public health

Pedestrian deaths in New York City since August 8, when the anti-jaywalking ordinance went into effect, are 22 percent less than for the same period in 1957; injuries are 14 percent less.

« »

The "bedside central center" at Wesley Memorial Hospital, Chicago, is the first completely integrated system of self-help for patients. Consisting of various switches, the machine enables a patient to draw draperies, turn on lights, raise or lower his bed, and so on. It also contains an intercom system between patient and nurse's station.

« »

Progress in Psittacosis Research and Control, published by Rutgers University Press, includes contributions by Justin M. Andrews, James A. Baker, Albert A. Benedict, Robert H. Russell, Preben Møller Christiansen, Donald E. Davis, John P. Delaplane, René J. Dubos, B. Eddie, Raymond Fagan, Irving Gorden, Robert J. Huebner, K. F. Meyer, R. J. Muir, Morris Pollard, J. H. Richardson, John H. Scruggs, N. L. Shipkowitz, Richard E. Shope, James H. Steele, and Morgens Volkert. The editor is F. R. Beaudette.

« »

The summer graduate program in public health statistics at the University of Michigan will be offered again in 1959 and 1960. Designed to train specialists in records maintenance and medical research, the program was developed under a grant from the Public Health Service.

The National Safety Council urges all States to license motor-scooter drivers in order to cut down teenage accidents; it opposes licensing drivers under 16 years old.

« »

Of public health nurses employed in Wyoming State and local health departments, 100 percent have completed an approved program of study in public health nursing.

« »

At the Second International Conference on Peaceful Uses of Atomic Energy, Lewis L. Strauss called for an international convention to protect the public against nuclear reactor accidents. Professor Johan H. de Boer, heading the Netherlands delegation, pressed for an international safety code.

« »

Four years of fluoridated water has reduced the number of cavities in school children by 47 percent and extractions by 43 percent, and has accounted for a saving of $1 million a year, Philadelphia Health Commissioner James P. Dixon says.

« »

According to Alcoholism and California Related Statistics, 1900–1956, published by the California State Department of Public Health, more alcohol has been consumed per capita in California since 1936 than in any other State. Alcoholism in California in 1955 affected 723 per 100,000 persons 21 years old or older, and it caused 1 percent of all deaths in that year, making it 11th among leading causes of death in the State.

The number of people without ready access to general hospitals has dropped from 10 million to 2.8 million in the last decade, the Public Health Service reports.

« »

Since August 15, the Public Health Service has been studying the effects of the fire ant control program on aquatic life in the southeast. The U. S. Department of Agriculture has treated about 200,000 of the 27 million acres affected. (See *Public Health Reports*, May 1958.)

« »

The National Cancer Institute, Public Health Service, has set up four projects for the development of cytological methods in diagnosing cancer of the lung, large intestine, stomach, and urinary tract. Three schools of medicine have been designated for the first three projects. In order, they are the University of Texas, Ohio State University, and Bowman-Gray in Winston-Salem, N. C. The site of the fourth project has not been determined.

« »

Emphysema tends to develop in obscure pockets of the lungs where everyday soot particles nestle, according to Dr. Charles P. Oderr, chief of radiology, New Orleans Veterans Administration Hospital. After photographing lung tissue specimens through a beryllium window tube, the investigators found 45 percent of 125 persons with evidence of the disease. Most of them had indoor dusty jobs.

« »

The number of orphans in the United States dropped from 6.4 million in 1920 to 2.7 million in 1958, whereas the child population rose from 39 to 60 million in that time, the Health Information Foundation reports.

« »

Federal programs for older people (excluding programs of the Department of Health, Education, and Welfare) are summarized in Issue No. 77 of the Social Legislation Information Service, Washington, D. C.

A favorable milieu for the growth of staphylococcal enterotoxins in codfish may be created by extensive handling, use of certain salt concentrations, and long immersion in tapwater before cooking.

Two Poisoning Outbreaks in Puerto Rico From Salt Preserved Codfish

ALFONSE T. MASI, M.D., RAFAEL A. TIMOTHEE, M.D., M.S.P.H., ROLANDO ARMIJO, M.D., M.P.H., DARWIN ALONSO, Ph.D., and LUIS E. MAINARDI, M.D.

IN THE FALL of 1957 Puerto Rican health authorities investigated a mass outbreak of food poisoning at the Ponce District Hospital and another at the institution for juvenile delinquents of San Juan. Both events were presumably caused by staphylococcal enterotoxins involving a common vehicle—salt-preserved codfish (Atlantic). The food in this form had not previously been incriminated in such intoxications.

The incident at the hospital, involving a reported 303 patients in a total population of 457, occurred following lunch on September 5, 1957. There were no reports of acute gastroenteritis in the community outside the hospital. In the juvenile institution, the outbreak followed lunch on November 27, 1957, affecting 236 inmates out of a total of 320. Both outbreaks were first reported to local public health authorities, who in turn informed the bureau of communicable disease control in the Puerto Rico Department of Health.

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Dr. Milton J. Foter of the Robert A. Taft Sanitary Engineering Center provided technical assistance, and Dolores Lugo Danielsen and Dr. Elaine Updyke of the Communicable Disease Center contributed to laboratory phases of the study. The paper was presented in essentially the same form before the Epidemic Intelligence Service Conference at the Communicable Disease Center in Atlanta, Ga., May 16, 1958.

Ponce District Hospital Outbreak

Between the lunch at the Ponce District Hospital and the onset of illness, the mean duration of time was 3¼ hours, with a range of 1 to 15 hours. The onset was sudden, with vomiting, headache, and abdominal pain but no significant temperature change. The majority had diarrhea, and several noted mucus in the discharge.

The mean duration of illness was 6¼ hours, with a range of 2 to 24 hours. An associated fatality occurred in a chronically ill 53-year-old woman with long-standing pemphigus vulgaris, in whom postmortem examination revealed changes of the intestine compatible with acute inflammation.

The menu for the suspected lunch consisted

of codfish salad, tomatoes, starchy fruits and vegetables (plantains, yams, and sweet potatoes), bread, butter, whole milk, and guava paste. Each item was investigated as to manner of preparation, and an analysis of attack rates of illness was made with the result that all could be reasonably excluded as responsible vehicles with the exception of codfish salad (table 1).

Because of the small number of persons in the originally interviewed group that had abstained from codfish, all inpatients were questioned in an effort to include cardiac and diabetic patients who were served the same menu with the exception of codfish salad and guava paste. Only guava paste was included as a control food to expedite this second survey which covered 196 patients (table 2).

The high attack rate of gastroenteritis (79.2 percent) in patients eating codfish salad without guava paste and the absence of illness in 37 cardiac and diabetic patients who abstained from the salad strongly implicates codfish as the responsible item ($P<.0001$). The only cardiac patient who suffered symptoms admitted eating cod against dietary orders.

The entire hospital population is served from the single kitchen in which sanitation was found to be impeccable. The routine manner of preparing codfish salad was to allow whole fillets to desalt in cold tapwater for 12 hours during the night and to prepare the salad on the morning of serving. However, a significant modification in technique occurred on the morning prior to the outbreak, when the salted fish was erroneously placed in hot tapwater. The average temperature of the kitchen is 100° F. during the day and 72° F. from 7 p.m. to 7 a.m. On the following morning the cod was prepared as a salad and distributed into thermatically controlled serving cars maintaining a temperature of 165° F. The food remained in these vehicles for 60 to 90 minutes before being consumed by the hospital population.

Five vomitus, two stool, and three blood cultures of severely ill patients revealed no staphylococci or other pathogens. The food bacteriology section of the health department could demonstrate no pathogens in any of the food items after considerable effort. Two frozen samples of cod were referred to the bacteriology department of the University of Puerto Rico Medical School after several weeks, because of the epidemiological implication. There, a coagulase-negative strain of *Staphylococcus*

Table 2. Rate of attack of acute gastroenteritis among 196 patients eating certain food combinations for lunch at the Ponce District Hospital, September 5, 1957

Food combinations	Total persons	Number ill	Percent ill
Codfish salad, with guava paste	133	120	90. 2
No codfish salad or guava paste	37	0	0
Codfish salad, no guava paste	24	19	79. 2
Guava paste, no codfish salad	2	0	0

Table 1. Rate of attack of acute gastroenteritis among persons eating lunch, Ponce District Hospital, September 5, 1957

Food item	Persons eating food item			Persons not eating food item		
	Total number	Number ill	Percent ill	Total number	Number ill	Percent ill
Codfish salad	289	254	87. 8	5	3	60. 0
Tomatoes	141	120	85. 1	153	137	89. 5
Yams	282	246	87. 2	12	11	91. 6
Sweet potatoes	287	251	87. 4	7	6	85. 7
Plantains	285	250	87. 7	9	7	77. 8
Bread	205	173	84. 4	89	84	94. 3
Butter	108	92	85. 2	186	165	88. 7
Whole milk	266	230	86. 4	28	27	96. 4
Guava paste	266	232	87. 2	28	25	89. 3

pyogenes var. *aureus* was readily demonstrated in both specimens in the approximate concentration of 10^6 organisms per gram. This strain was subsequently encountered by the food bacteriology section of the department and has been confirmed as such by the Staphylococcal Unit of the Communicable Disease Center, which undertook phage typing of strains isolated in the outbreaks.

No cultural examination of the kitchen personnel was made for staphylococcal carriers because of the original lack of success in isolating this organism from the food. There was, however, no evidence of superficial purulent lesions or a history of recent upper respiratory infection.

Table 4. Rate of attack of acute gastroenteritis among persons eating certain food combinations for lunch at the institution for delinquents, November 27, 1957

Food combinations	Total persons	Number ill	Percent ill
Rice and beans	221	177	80. 1
With pudding	193	158	81. 9
Without pudding	28	19	67. 9
With codfish	203	177	87. 2
Without codfish	18	0	0
Pudding	194	159	81. 9
Without rice	1	1	100. 0
With codfish	184	159	86. 4
Without codfish	10	0	0
Codfish	205	179	87. 3
Without pudding	21	20	95. 2
Without rice	2	2	100. 0
Total persons eating	223	179	80. 3

Outbreak at the Juvenile Institution

In the outbreak at the institution for juvenile delinquents, the mean interval between lunch and the onset of illness was slightly less than 2 hours, with a range of several minutes to 8 hours. The symptoms were similar to those of the previous outbreak, and the duration of illness was less than 24 hours in two-thirds of the cases and from 1 to 4 days in the remainder.

The menu consisted of codfish salad, rice and beans, bread pudding, and bread. An analysis of attack rates of illness by food consumed by 223 available inmates (table 3) strongly implicates codfish salad as the responsible item ($P < .0001$). Furthermore, an analysis of attack rates by food combinations reveals an absence of illness in inmates consuming either rice and beans or pudding but abstaining from the salad (table 4).

The preparation of codfish salad at this institution left no doubt as to its potentialities to support the production of enterotoxin. Food for the inmates is prepared in a separate kitchen, which is of substandard hygiene and is staffed by the inmates. At 3:00 p.m. in the afternoon, 20 hours before serving, 100 pounds of cod were boiled for 1 hour. Fresh tapwater was added to the caldron and three inmates extracted fish by hand to remove bones. At 5:30 p.m., with one-quarter deboned, the work was abandoned to be completed the following morning. The fish remained at room temperature until 11:30 a.m., when it was served after light seasoning.

No specimens were obtained from patients. The food bacteriology section isolated various strains of *Staphylococcus pyogenes* from the rice and bread pudding but could not demonstrate any such contamination in the salad. However, the school of medicine isolated a coagulase-positive strain of *Staphylococcus*

Table 3. Rate of attack of acute gastroenteritis among persons eating lunch at the institution for delinquents, November 27, 1957

Food item	Persons eating food item			Persons not eating food item		
	Total number	Number ill	Percent ill	Total number	Number ill	Percent ill
Rice and beans	221	177	80. 1	2	2	100. 0
Pudding	194	159	81. 5	29	20	69. 0
Codfish salad	205	179	87. 3	18	0	0
Bread	202	165	81. 7	21	14	66. 7

pyogenes var. *aureus* in the codfish salad with an estimated concentration of 1.6×10^7 organisms per gram. All strains were confirmed by the Staphylococcal Unit of the Communicable Disease Center. The one isolated from the cod and two other coagulase-positive strains from rice and bread pudding proved resistant to the phage types used. Ten of the twelve food handlers were also shown to carry coagulase-positive *Staphylococcus pyogenes* var. *aureus* including six phage-resistant strains.

Enterotoxin Production

Isolated strains of staphylococci from the codfish salad served at the hospital and the institution for juvenile delinquents were referred to the Robert A. Taft Sanitary Engineering Center, Public Health Service, for enterotoxin production experiments.

Heated culture filtrates were tested by intravenous injection into cats. None of the laboratory animals receiving the filtrates prepared from the cultures gave the response which typically follows the injection of enterotoxin.

According to Dr. Foter, who supervised the enterotoxin testing at the Robert A. Taft Sanitary Engineering Center, there is at present no completely satisfactory experimental test for enterotoxin. The most reliable test is the feeding of suspected food to human volunteers, which is obviously impractical as a routine test.

The feeding of laboratory animals with suspected food results in nonspecific responses. In Dr. Foter's opinion, intravenous injection of a heated culture filtrate of staphylococci isolated from food into cats has limited value. The observations indicate that a positive response would be reliable, but the meaning of a negative response is not clearly understood.

Also, there is evidence that the laboratory animals used for this type of test, the monkey and the cat, are less susceptible to enterotoxin than man. An assay which can be performed quickly with simple equipment and with a high degree of reliability is urgently needed.

Discussion

The success of the medical school laboratory in isolating staphylococci from the codfish salad was attributed to the use of milk with 10 percent sodium chloride agar for plating after making appropriate dilutions. This type of selective medium was not used by the food bacteriology section of the health department. *Staphylococcus pyogenes* has been shown to have a high salt tolerance (*1*), with enterotoxigenic strains proved capable of initiating growth in a 20 percent sodium chloride broth (*2*). Nutrient media containing 7.5 to 10 percent sodium chloride, in fact, have previously been demonstrated to be preferable for the isolation of *Staphylococcus pyogenes* from sources highly contaminated with other organisms (*3,4*).

To date there has been no demonstration that naturally occurring coagulase-negative *Staphylococcus pyogenes* produces enterotoxin (*2,5,6*), but the strain isolated in the outbreak at the Ponce District Hospital (from 4 different food samples by 2 laboratories) bears a suspicious relation to the etiology, and we believe it merits further study.

The time, temperature, and salt-concentration conditions that prevailed in the preparation of the salad prior to the Ponce hospital outbreak were duplicated in the food bacteriology laboratory. The extended desalting allowed luxuriant growth of staphylococci, but the seasoning and heating process before serving resulted in a marked diminution of these organisms. Therefore, a possibility to be considered is that an enterotoxin may have been produced by a strain of staphylococcus which was destroyed by final heating, and that the coagulase-negative strain appeared as a contaminant. It is unlikely that any of the temperature factors, detrimental as they may have been to these organisms, would have altered a formed toxin (*7*).

Phage typing of enterotoxin-producing strains of coagulase-positive staphylococci has received attention (*8–10*). Although it has been found that the great majority of the reported strains belonged to a reasonably easily defined group of phage patterns, approximately 12 percent were phage resistant, as was the case with the strain isolated from the codfish salad implicated in the outbreak at the juvenile delinquents' institution.

A brief review of the dry-salting process of

preserving codfish is pertinent to an understanding of the food's potentialities for contamination with enterotoxigenic staphylococci. The flesh and body cavities of salt water fish are sterile (*11*), but the surfaces and gut may be contaminated in the order of 10^2 to 10^7. Dyer has demonstrated that 73 percent of aerobic flora of Atlantic cod may belong to the micrococcus group and that 7 percent of these were *Staphylococcus pyogenes* vars. *aureus* and *albus* (*12*). However, these organisms appeared to be marine in origin (*13*) and were not considered potentially pathogenic because of a uniformly negative coagulase reaction (*14*). When the fish arrives at shore and is handled, the micrococcus flora increases in inverse ratio to the degree of cleanliness of the premises (*15*). Of the micrococci growing at 98.6° F., 10 to 16 percent were shown to be indistinguishable from coagulase-positive *Staphylococcus pyogenes* var. *aureus*. These micrococci must be considered potentially pathogenic (*16*).

After filleting, the cod is preserved with salt which appears to be a complex process involving the inactivation of bacterial enzymes besides the withdrawal of moisture, thus restricting microbiological activity (*17*). Salt is interspersed between layers of split fish, establishing a concentration of about 20 percent in 14 to 16 days while the juices are allowed to run away, with a maximum loss of weight of 30 percent (*18*). The flesh, at this stage "wet stack" or "green" cured, always contains some microorganisms, almost exclusively micrococci, and never becomes sterile (*15*). Spoilage at this stage is known as "pinking" because of the characteristic pigment produced by the contaminating flora (*19*). Food poisoning was observed in association with spoiled and "pink" cod as early as 1886 (*20*), but the nature of the poisoning has not been clearly defined.

The fish is then hard dried by exposure to wind and sun and is no longer susceptible to such contamination unless stored in relative humidities of 75 percent and greater. Boury (*21*) has demonstrated, however, that *Staphylococcus pyogenes* var. *aureus* may survive in hard-dried cod fillets and even grow under suitable conditions of humidity.

This report has demonstrated the hazard of exposing salted cod to water at environmental temperatures for extended periods of time. Although a preformed staphylococcal enterotoxin has not yet been demonstrated in salted cod during its processing or storage, the logical extension of available evidence forces one to consider this a strong possibility. More adequate information, therefore, is needed with regard to the safe hygienic standards in these phases for the protection of the public's health.

The study also illustrates the need for careful analysis of information obtained from field investigations of foodborne outbreaks, inasmuch as definite laboratory confirmation of causative factors often is not obtainable.

Summary and Conclusions

Two food poisoning outbreaks in Puerto Rico during the fall of 1957 were ostensibly caused by staphylococcal enterotoxin in salt-preserved codfish, a product that had not previously been incriminated in such mass intoxications.

The first outbreak, at the Ponce District Hospital, affected 303 persons and the second, 236 inmates of a juvenile delinquents' institution. Laboratory tests on samples of the codfish salad served in the second outbreak yielded strains of *Staphylococcus pyogenes* var. *aureus* when a 10 percent sodium chloride nutrient medium was used.

The findings support the view that partial preservation of codfish by salting does not completely destroy contaminating organisms which have a high salt tolerance. In fact, the addition of suitable concentrations of salt may serve to kill spoilage bacteria which might compete for growth with the staphylococcus.

These food poisoning experiences demonstrated the hazard of consuming salt-preserved codfish following its extended exposure to water at environmental temperature.

Enterotoxin production studies were carried out on cats in the laboratories of the Robert A. Taft Sanitary Engineering Center. When the animals received filtrates from cultures of strains isolated in the outbreaks, they did not give the response which typically follows injection of enterotoxin.

This type of test, however, results in nonspecific responses. There is evidence, more-

over, that both the monkey and the cat are less susceptible to enterotoxin than man. There is urgent need for a simple, fast, but reliable test for enterotoxin.

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Serologic Evidence Of L. australis A In a Georgia Patient

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THE SEROTYPE *Leptospira australis* A Ballico was first isolated by Cotter and Sawers (*1*) in 1934 in northern Queensland, Australia. It was reported recently by Derrick and others (*2*) as the second most common serotype in Australia and accounted for 87 percent of the leptospirosis cases that occurred in canefield workers. The principal animal carrier was found to be a native rat, *Rattus conatus* (*3*). In addition, this serotype was isolated from the kidney of a dog in Makasar by Mochtar (*4*) and from hedgehogs and yellow-throated mice, *Apodemus flavicollis*, in Czechoslovakia by Kmety (*5*).

No evidence of *L. australis* A infection was found in the United States until 1955, when two cultures isolated from raccoons in Decatur County, Ga. (*6*), were identified in the Communicable Disease Center's Leptospira Research Laboratory (*7*). Subsequently, presumptive identification has been made of 3 other isolations from raccoons and 1 from an opossum in southwestern Georgia.

In August 1956 a macroscopic slide agglutination test antigen was prepared from the first *L. australis* A strain isolated in southwestern Georgia. The antigen was incorporated into the battery of leptospiral antigens used to screen all human and animal serums examined in the laboratory. Routine use of this antigen led to the detection of *L. australis* A antibodies in serum from a patient in October 1957. The history of the patient's illness and the subsequent epidemiological investigation are described in this report.

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Case History

J. W., a 14-year-old white schoolboy, awoke on October 11, 1957, with generalized malaise. Several hours later he had a headache accompanied by rapid onset of pain in both calves and knees that was aggravated by movement. The muscular pains spread to the thighs, and nausea with vomiting began. Fever was first noted in the evening of the day of onset. The following day, October 12, after 36 hours of clinical illness, he was admitted to Grady Memorial Hospital. On admission, temperature was 104° F. (rectal); pulse, 92; blood pressure, 130/65.

When questioned, the patient revealed that he had been swimming in a creek on a farm near Atlanta 10 days prior to admission. During the 2 weeks prior to onset of illness he had stayed with an aunt who owned a dog and several hogs. Many rats had been seen around the aunt's home and hogpens.

On examination, he appeared acutely ill and moderately lethargic. A generalized skin rash was present, most marked over the trunk, extremities, and face, but there was no eruption on either the palms or soles. Each circumscribed, maculopapular eruption measured 0.5 to 1.0 cm. in diameter and blanched on pressure. The pharynx was diffusely injected without exudate. There was no evidence of conjunctivitis, jaundice, joint tenderness, or swelling. Results of electrocardiogram were within normal limits. The initial white blood count was 8,300 per cc. with 76 percent segmented forms, 4 percent band forms, and 20 percent lymphocytes. The sedimentation rate was 41 mm. per hour. Urinalysis revealed a specific gravity of 1.025, 3 red blood cells per high-power field

with only an occasional white blood cell. No albumin, sugar, or acetone was detected. Cerebrospinal fluid pressure, protein, and sugar content were within normal limits. There were 12 lymphocytes per high-power field.

Blood was obtained on the second full day of hospitalization (October 14) and cultured in Fletcher's medium for leptospires. The patient was then given injections of 600,000 units of procaine penicillin every 4 hours and of 250 mg. of chloramphenicol every 6 hours. Fever characterized the first 2 days after admission. Rectal temperature ranged up to 105° F. on the first day, but did not go above 100° F. on the second day, and thereafter remained normal. Marked subjective improvement occurred on the morning of the second hospital day. Although the total peripheral white blood count remained within normal limits, progressive lymphocytosis which reached 40 percent was present during the second week of hospitalization. Hepatic function was within normal range, and acute and convalescent serums were negative when tested for agglutination with typhoid, paratyphoid, brucella, and OX–19 antigens.

Skin biopsy of the rash showed a mild perivascular, acute inflammation. Muscle biopsy was unremarkable. The patient was discharged on the 10th hospital day and has remained well.

Serum obtained from the patient the third day after onset of illness was negative when tested by macroscopic slide agglutination with 12 leptospiral antigens, but a second sample collected on the seventh day of illness showed a positive slide test with *L. australis* A antigen. When tested by microscopic agglutination with a battery of 18 live leptospiral antigens, the second serum sample reacted only with *L. australis* A antigen to a titer of 1:200. For serum samples obtained from the patient on the 10th, 12th, 25th, and 42d days after onset of illness, titers of 1:1,600, 1:1,600, 1:400, and 1:400, respectively, were demonstrated against *L. australis* A antigen. (These titers were confirmed by A. D. Alexander, of the Walter Reed Army Institute of Research.) No reaction was obtained with the remaining 17 leptospiral antigens. Serum obtained from the patient 11 months later (September 1958) reacted to a titer of 1:100 with *L. australis* A antigen. No leptospires were isolated from the blood cultured on the third day of illness.

Epidemiological Investigation

In early November, about a week after the patient was released from the hospital, a visit was made to his home to obtain further information regarding his possible exposure, but no one was at home. About a week later the patient and the aunt with whom he had stayed prior to his illness were found, and arrangements were made to visit the aunt's home and the site where the patient had been swimming. Conditions about the aunt's home were conducive to rat infestation. Although she had used warfarin about 3 weeks earlier, arrangements were made to set traps around the premises. Near the house were several hogpens with eight hogs standing in mud about 6 inches deep. Blood samples were collected from two of the hogs for leptospiral agglutination tests.

The creek where the patient had been swimming, approximately 4 miles from College Park, Ga., ran through a pasture in which cattle were grazing. The swimming "hole" was at the edge of a thickly wooded area. Fox and raccoon tracks were observed on the creek bank. Permission was granted by the owner to obtain blood specimens from the cattle and to set traps for wild animals in the vicinity of the creek. All trapping was done with the assistance and cooperation of the Fulton County Health Department, the U. S. Fish and Wildlife Service, and the Insect and Rodent Control Section of the Communicable Disease Center.

Twelve traps were set in and around the aunt's home and hogpens, but only one young rat (*Rattus norvegicus*) was caught, probably because of the recent use of warfarin. No leptospires were isolated from the kidney and urine of this rat, and no leptospiral antibodies were detected in the serum. Blood specimens from the two hogs were negative also in 12 leptospiral antigens when tested by slide agglutination.

Serum from 2 of the 4 cattle tested showed a weakly positive slide agglutination reaction to *Leptospira pomona* antigen. Traps were set in the vicinity of the creek for 3 nights, 15 to 20 traps each night. A total of 3 opossums, 3

swamp rabbits, and 1 red fox were caught. *Leptospira ballum* was isolated from the kidney and urine of one opossum and its serum agglutinated with *L. ballum* antigen. No leptospires were obtained from kidney and urine cultures of the other animals, and no leptospiral antibodies were detected. It is interesting that *Salmonella give* was isolated from the urine of another opossum and *Salmonella typhimurium* from the kidney of the third opossum.

It was learned that three other boys, ages 14 to 16 years, went swimming with the patient. When questioned, they stated they had not been ill. Serum samples were not obtained from them until approximately 3½ months after the patient's illness and no leptospiral antibodies were detected.

The aunt's dog had died shortly after the patient's illness. A local veterinarian stated that symptoms exhibited by the dog before death did not indicate leptospirosis.

Comment

The clinical symptoms exhibited by the patient and the demonstration of a rise and fall in antibody titer to *Leptospira australis* A Ballico, together with a history of both direct and indirect exposure to animals, suggest a diagnosis of leptospirosis probably caused by a member of the *australis* A serogroup or a related serotype.

While the limited epidemiological studies did not reveal evidence of *L. australis* A infection in animals around the home in which the patient had stayed prior to his illness or in those that had access to the creek, *Leptospira ballum* was isolated from one of the opossums trapped near the creek. Previous studies in Virginia (*8*), Louisiana (*9*), and Georgia (*6*) have shown that opossums may harbor at least seven leptospiral serotypes including *L. australis* A. Thus, the most likely hypothesis as to the possible source of the boy's infection appears to be the creek which may have been contaminated by infected opossums or other wild animals.

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Air Pollution Control Association Meeting

The annual meeting of the Air Pollution Control Association will be held June 22–26, 1959, at the Hotel Statler, Los Angeles, Calif. The latest equipment for air pollution control will be displayed in the exhibit area, where experts will demonstrate the equipment and answer questions. Copies of papers presented at technical sessions will be incorporated in printed proceedings.

New Chapter in Hemisphere Health

DR. Abraham Horwitz of Chile took the oath of office as director of the Pan American Sanitary Bureau, Washington, D.C., January 15, 1959, to begin his duties on February 1. A few days later, in Geneva, he was formally inducted as director, Regional Office for the Americas, World Health Organization. Dr. Fred L. Soper, who is completing his third 4-year term as bureau director, now becomes director emeritus.

Participating in the ceremonies held in the Hall of the Americas of the Pan American Union were Dr. Soper; Dr. Guillermo Arbona, secretary of health of the Commonwealth of Puerto Rico and president of the 15th Pan American Sanitary Conference; Dr. Jose A. Mora, Secretary General of the Organization of American States; and Dr. Carlos Diaz-Coller of Mexico, chairman of the executive committee of the Pan American Health Organization.

Selections from the remarks on this occasion follow:

The Pan American Health Organization

"The 1947 constitution of the Pan American Sanitary Organization, now the Pan American Health Organization, boldly declares its field to be the entire Western Hemisphere, and opens its doors to all governments of the Americas to participation in the coordinated effort to combat disease, lengthen life, and promote physical and mental health. The agreements negotiated with the World Health Organization in 1949 and with the Organization of American States in 1950 have set the pattern for bridging the gap between the United Nations system and that of the Organization of American States, with a single technical, nonpolitical operating agency representing both systems.

"The Pan American Sanitary Bureau was created in 1902 with the limited objective of aiding the American republics in preventing the spread of epidemic diseases from one maritime port to another with a minimal interruption to the movement of ships. [The Bureau serves as the operating arm of the Pan American Health Organization, which is a specialized agency of the Organization of American States, and also as regional office of the World Health Organization.]

"The inauguration of Dr. Horwitz finds the Pan American Health Organization with a declared long-range hemispheral program devoted to three general activities:

- The strengthening of the fundamental health services of all countries of the Americas.
- The expansion of education and training programs and facilities for health workers.
- The coordination of national communicable disease control programs in campaigns of total regional eradication.

"To these must be added a fourth which is becoming increasingly important: the development and administration of special cooperative, long-term combined research training and field demonstration control programs in special fields. The Bureau has pioneered in such programs in the fields of nutrition, yellow fever, aftosa (foot and mouth disease), and the zoonoses.

"The mere enumeration of these objectives emphasizes the need for, and the advantages of, a continentwide health program with full participation of all countries of the Americas. . . .

"The Pan American Health Organization has made far-reaching commitments. It is committed to the eradication of malaria from the Western Hemisphere. Here it is in the fore-

Illusory Walls

"Whether we like it or not we live on a world scale; problems of sickness, ignorance, and hunger call for worldwide solutions. We can say where is the gate of a town; the frontier of a State, and what lines trace out the profile of a continent. But who could show on the map where the realm of tuberculosis begins or where the empire of illiteracy ends? Evils merge into one another. Just as the proximity of a sick person is a danger to the healthy, so the very existence of the ignorant and the starving is a disgrace to those who eat their fill and to those who enjoy the benefits of an education to which millions of their brethren have no access. And this disgrace is not without its dangers. . . . Progress cannot be other than collective if it is not to bear within it the seeds of its own destruction."—DR. JAIME TORRES BODET, *Secretary of Education of Mexico, quoted by Dr. Carlos Diaz-Coller.*

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front of a drive toward eradication of malaria throughout the world. Eradication programs for smallpox, yaws, and urban yellow fever have also been approved by the governing bodies.

"Dr. Horwitz enjoys a distinguished career in public health. He brings to his new position a rich experience in the teaching and practice of public health in his own country, Chile, and in this organization. Dr. Horwitz has the advantage of some years of experience on the staff of the Pan American Sanitary Bureau and in recent years has served as his country's representative on the governing bodies of the organization. With his intimate knowledge of the organization's work, with the whole-hearted support of the member governments extended at the 15th Pan American Sanitary Conference and with the respect and affection which he enjoys among his colleagues on the Bureau's staff, the organization can look forward to a period of increasing fruitful activity under his leadership."—DR. FRED L. SOPER, *director emeritus of the Pan American Sanitary Bureau, Regional Office of the World Health Organization.*

The State of Well-Being

"The concept of health as stated in the opening words of the constitution of the World Health Organization—a state of physical, emotional, and social well-being—is a challenging one. It seems to me that this definition makes 'health' synonymous with 'happiness.' It is only natural that our efforts have been directed mostly toward the promotion of the physical well-being of people. All of us in the public health field recognize the present and continuing priority of the prevention of death and disease, so much of which is completely unnecessary in the light of present-day knowledge.

"I cannot let this occasion pass, however, without calling attention again to the wider concept of health. Obviously, physical well-being contributes to emotional and social well-being; nevertheless, I feel that those of us in the health field must also find methods to promote emotional and social well-being directly.

"To be successful, the malaria eradication programs of today require the active participation of local communities and individuals in local communities. It has been clearly demonstrated that to obtain this participation efficiently the techniques of the behavioral sciences must be used; thus knowledge in the emotional and social fields furthers physical health.

"Perhaps in the field of child health it is easier to illustrate a direct approach to emotional and social well-being. In the practice of pediatrics, in child health clinics and conferences, major emphasis has been on the child's nutrition and his protection against communicable diseases. The trend now, however, is for health workers to widen their scope and to consider the totality of the physical, emotional, and social well-being of the child. Disordered

behavior is just as clear a sign of the failure of the health team as continued prevalence of malaria. We must eradicate malaria but we must also help the people, whose lives we save, to be happy and productive.

"I feel certain that as more knowledge is accumulated in the behavioral sciences we will be better able to understand the individual person as a physical, emotional, and social being, as a member of the family, and of the community. This knowledge will enable us health workers to make a much greater contribution to the happiness of the human being."—Dr. Guillermo Arbona, *secretary of health of the Commonwealth of Puerto Rico.*

The Purest Expression of Humanism

"After 57 years of effective accomplishment in the field of public health, the countries of this hemisphere have shown, without ostentation, the real possibilities of mutual understanding and cooperation for a noble cause. This is the essential meaning of the mission being performed by the Pan American Health Organization, of which the Pan American Sanitary Bureau is the secretariat. Its objectives are the purest expression of that humanism which thinks of man as the beginning and the end of all.

"To prevent disease, to prolong life, and to promote the health and welfare of the people are the purposes that our organization has been developing in this century, maintaining constant progress as our culture has evolved and as our society has gone through its vicissitudes. And for this reason, eradication of communicable diseases has been, and still is, in the forefront of the work of the organization.

"More than knowledge and experience, eradication of disease requires creative imagination, willingness to serve, perseverance, and courage. And these are some of the characteristics of the personality of Dr. Fred L. Soper, my illustrious predecessor, who has been called, with all justice, 'citizen of the Americas' in recognition of his work on behalf of continental health. . . .

"The path to be followed by the organization is well established. The doctrine is solid and clear, the principles and the methods well proven, and the structure is flexible enough to be adapted to progress and needs. We will continue with the present programs of eradication of malaria and other scourges, and will start new ones against other diseases as soon as research and knowledge suggest the possibility. For eradication is a fight of man in his effort to survive against the designs of nature.

"While the countries are making substantial progress in this field, the need for more and well-prepared experts in the different branches of public health has become crucial. Their presence is indispensable for both national and international programs. Our organization will help to prepare them in the full breadth of the university spirit, having mankind and its environment as their ever-present objective. They should carry out their tasks mindful of the vision of the people and their feelings. With dedicated workers, every activity in public health is possible: to reduce infant mortality to rational levels, to provide better sanitation, to improve and to extend medical care, to strengthen local and national health services. In summary, to contribute to the welfare of the people and, thus, to the economic development of the countries.

"The technical progress of our time has increased enormously the scope and the consequences of human actions. It has stressed the need for a moral conscience above interests and conveniences. In the field of health our course is clear. The long and fruitful history of the Pan American Health Organization has demonstrated single-mindedness of purpose, looking steadily towards betterment of the health of the peoples of the Americas. Because I believe wholeheartedly that this goal is practical and realistic, I propose to continue the work of the organization along the lines which have been so well established. To achieve these ends I shall rely on the understanding and support of the member governments and their leaders in public health; on the joint effort of public and private international organizations, and on the devoted collaboration of the excellent staff of the Pan American Sanitary Bureau. I humbly offer my willingness to serve."—Dr. Abraham Horwitz, *director of the Pan American Sanitary Bureau.*

Milk Sanitation Honor Roll for 1957–58

Seventy-one communities have been added to the Public Health Service milk sanitation "honor roll," and 41 communities on the previous list have been dropped. This revision covers the period from January 1, 1957, to December 31, 1958, and includes a total of 298 cities and 102 counties.

Communities on the honor roll have complied substantially with the various items of sanitation contained in the milk ordinance suggested by the U.S. Public Health Service. The State milk sanitation authorities concerned report this compliance to the Public Health Service. The rating of 90 percent or more, which is necessary for inclusion on the list, is computed from the weighted average of the percentages of compliance. Separate lists are compiled for communities in which all market milk sold is pasteurized, and for those in which both raw milk and pasteurized milk are sold.

The suggested milk ordinance, on which the milk sanitation ratings are based, is now in effect through voluntary adoption in 487 counties and 1,424 municipalities. The ordinance also serves as the basis for the regulations of 35 States and Hawaii. In 15 States and Hawaii it is in effect statewide.

The ratings do not represent a complete measure of safety, but they do indicate how closely a community's milk supply conforms with the standards for grade A milk as stated in the suggested ordinance. High-grade pasteurized milk is safer than high-grade raw milk because of the added protection of pasteurization. The second list, therefore, shows the percentage of pasteurized milk sold in a community which also permits the sale of raw milk.

Although semiannual publication of the list is intended to encourage communities operating under the suggested ordinance to attain and maintain a high level of enforcement of its provisions, no comparison is intended with communities operating under other milk ordinances. Some communities might be deserving of inclusion, but they cannot be listed because no arrangements have been made for determination of their ratings by the State milk sanitation authority concerned. In other cases, the ratings which were submitted have lapsed because they are more than 2 years old. Still other communities, some of which may have high-grade milk supplies, have indicated no desire for rating or inclusion on this list.

This compilation is from the Division of Sanitary Engineering Services, Bureau of State Services, Public Health Service. The previous listing, with a summary of rules under which a community is included, was published in Public Health Reports, September 1958, pp. 861–864. The rating method was described in Public Health Reports 53: 1386 (1938); reprint No. 1970.

Communities awarded milk sanitation ratings of 90 percent or more, 1957–58

100 PERCENT OF MARKET MILK PASTEURIZED

Community	*Date of rating*
Arizona	
Phoenix	2–1957
Colorado	
Boulder County	8–1958
Colorado Springs	12–13–1957
Denver	8–27–1957
Las Animas-Huerfano Counties	4–22–1958
Pueblo County	2–23–1958
Weld County	10–24–1957
District of Columbia	
Washington	3– 6–1958
Georgia	
Albany	11–22–1957
Athens	6–25–1958
Atlanta	8–23–1957
Augusta	2–14–1958
Bainbridge	3–25–1958
Cairo	5– 7–1958
Calhoun-Gordon County	8–12–1958
Canton	10–30–1958
Cartersville	1–30–1957
Columbus	1–18–1957
Dalton-Whitfield County	5–21–1957
Douglas County	7–25–1958
Georgia—Continued	
Griffin	11–14–1957
La Grange	10– 8–1958
Moultrie	10–29–1958
Paulding County	7–25–1958
Quitman	8–13–1958
Savannah	7–18–1958
Statesboro-Bulloch County	3–27–1957
Valdosta	3–12–1958
Waycross	3–14–1958
Illinois	
Chicago	6–13–1957

Communities awarded milk sanitation ratings of 90 percent or more, 1957–58—Continued

100 PERCENT OF MARKET MILK PASTEURIZED—Continued

Community	Date of rating
Illinois—Continued	
East Side Health District:	6– 5–1958
Brooklyn	
Cahokia	
East St. Louis	
Fairmont City	
National City	
Washington City	
Evanston	3–13–1957
North Shore municipalities:	3–20–1957
Glencoe	
Highland Park	
Kenilworth	
Lake Bluff	
Lake Forest	
Northfield	
Wilmette	
Winnetka	
Oak Park	3– 6–1957
Peoria	4–17–1958
Indiana	
Anderson	5–22–1957
Berne-Bluffton area	10–17–1958
Bloomington	1–10–1958
Bremen	1–29–1958
Calumet region:	4–24–1957
East Chicago	
Gary	
Hammond	
Columbia City	6–20–1958
Cooperative Grade A area:	2–13–1958
Holland	
Huntingburg	
Jasper	
Tell City	
Elkhart, Goshen, Nappanee area	12– 5–1957
Evansville	6– 5–1958
Fort Wayne	7–15–1958
Frankfort	6–10–1957
Indiana Falls City area:	10–16–1957
Jeffersonville	
New Albany	
Salem	
Scottsburg	
Kokomo	2–19–1957
Lafayette and W. Lafayette	5– 5–1958
Lake County	3–25–1957
Logansport	3–27–1958
Madison	7–23–1958
Marion County	4– 2–1958
Michigan City	4–23–1958
Monticello	10–16–1958
Muncie	5–29–1958
New Castle	4–24–1958
North Manchester	7– 3–1957
Peru	10–30–1958
Richmond	4–24–1957
Rochester	9–17–1958
South Bend	12–11–1957
Union City	7– 3–1957
Vincennes	10– 3–1957
Warsaw	8–15–1958
Winchester	5– 7–1957
Iowa	
Cedar Rapids	10– 9–1958
Davenport	7–24–1958
Des Moines	7– 3–1958
Dubuque	6–20–1958
Iowa City	10– 9–1958
Kentucky	
Bardstown and Nelson County	5–21–1957
Bell County	4–19–1957
Benton and Marshall County	2– 6–1958
Bowling Green and Warren County	7–22–1957
Brandenburg	4–11–1957
Butler and Falmouth	4– 2–1958
Campbellsville	4– 5–1957
Covington	6–13–1957
Cynthiana and Harrison County	4– 8–1958
Danville and Boyle County	4–1958
Elizabethtown	1– 8–1958
Frankfort	10–18–1957
Greenville	1–21–1958
Hardinsburg and Breckinridge County	10–22–1958
Harrodsburg	2–20–1957
Hodgenville	10–20–1958
Hopkinsville and Christian County	9–26–1957
Lawrenceburg and Anderson County	6– 5–1958
Leitchfield and Grayson County	10–10–1957
Liberty	11–18–1958
Louisville and Jefferson County	3–1958
Mayfield and Graves County	8– 2–1957
Maysville	7–23–1957
Monticello	6–19–1958
Morganfield and Union County	1–21–1958
Morgantown	1–10–1958
Murray and Calloway County	2– 5–1958
Newport and Campbell County	10–18–1957
Owensboro	5– 9–1958
Owenton	3–31–1958
Paducah	7–31–1957
Paris and Bourbon County	1–1958
Pendleton County	4– 2–1958
Pike County	7–22–1958
Prestonsburg and Floyd County	7–22–1958
Shelby County	1–17–1958
Smithland and Livingston County	2– 7–1958
Taylorsville and Spencer County	6–30–1958
Webster County	5–22–1958
Mississippi	
Amory	4– 8–1958
Booneville	8–28–1957
Brookhaven	1–15–1958
Canton	9–30–1958
Clarksdale	1– 9–1957
Columbia	8– 7–1958
Columbus	7–16–1958
Corinth	7– 9–1957
Greenville	10–21–1958
Grenada	9–24–1957
Hattiesburg	5–16–1958
Hernando	1– 7–1957
Houston	6–26–1957
Iuka	7–11–1957
Kosciusko	6–12–1958
Laurel	5–20–1958
Louisville	8–18–1958
Macon	2–26–1958
Meadville	3– 7–1957
Meridian	2–27–1958
New Albany	10–10–1957
Oxford	8–27–1957

Communities awarded milk sanitation ratings of 90 percent or more, 1957–58—Continued

100 PERCENT OF MARKET MILK PASTEURIZED—Continued

Community	Date of rating
Mississippi—Continued	
Pascagoula	6–19–1957
Picayune	10–30–1957
Starkville	3–13–1957
State College	3–13–1957
Tupelo	4– 9–1957
West Point	7–15–1958
Missouri	
Chillicothe	3– 5–1957
Kansas City	6–11–1958
St. Joseph	4–14–1958
St. Louis	11–26–1957
St. Louis County	6– 4–1958
Sedalia	8– 7–1957
Sikeston	2–11–1958
Springfield	5–13–1958
Nebraska	
Omaha	2–19–1958
Nevada	
Clark, Lincoln, and Nye Counties	5– 1–1957
North Carolina	
Alamance County	3–15–1957
Beaufort County	5–22–1957
Bertie County	2– 7–1958
Bladen County	4– 9–1958
Camden County	5– 2–1958
Chatham County	8–13–1957
Chowan County	5– 2–1958
Craven County	8–30–1957
Cumberland County	3–28–1958
Durham County	4–22–1958
Edgecombe County	5–21–1958
Forsyth County	2–22–1957
Gates County	7–31–1958
Guilford County	6–18–1958
Halifax County	9–13–1957
Harnett County	10–15–1958
Haywood County	3–14–1958
Henderson County	10–20–1958
Hertford County	7–31–1958
Iredell County	7– 1–1958
Lee County	3– 7–1957
Lenoir County	9–19–1958
Martin County	8–13–1958
Mecklenburg County	3– 7–1958
Moore County	5–15–1958
Nash County	1–17–1957
New Hanover County	4–21–1958
Northampton County	7–31–1958
North Carolina—Continued	
Onslow County	5–20–1957
Orange County	8–13–1957
Pamlico County	5–24–1957
Pasquotank County	5– 2–1958
Perquimans County	5– 2–1958
Person County	8–13–1957
Pitt County	4– 1–1958
Richmond County	7–30–1958
Rocky Mount	2–27–1958
Rowan County	6–28–1957
Sampson County	5–22–1958
Scotland County	11–22–1957
Stanly County	9–10–1958
Transylvania County	10–20–1958
Tyrrell County	2– 6–1958
Washington County	2– 6–1958
Wayne County	1–27–1958
Wilson County	1–27–1958
Ohio	
Lima	10–1957
Oklahoma	
Bartlesville	2–26–1957
Tulsa	6–21–1957
Tennessee	
Athens	9–25–1958
Bristol	11– 7–1957
Clarksville	2– 7–1958
Cleveland	5– 8–1958
Clinton	9–16–1958
Columbia	5–19–1958
Cookeville	4–18–1958
Cowan	10–16–1958
Decherd	10–16–1958
Elizabethton	5–28–1957
Erwin	10–30–1958
Fayetteville	6–10–1958
Franklin	5–15–1958
Greeneville	1–28–1958
Humboldt	11– 5–1958
Huntingdon	10–28–1958
Jackson-Madison County	10–14–1958
Kingsport	1–30–1958
Knoxville-Knox County	9–25–1957
Lewisburg	6– 9–1958
Lexington	10–30–1958
Loudon	5–26–1958
Manchester	10–15–1958
Memphis	3–24–1958
Tennessee—Continued	
Milan	11–11–1958
Morristown	7–10–1958
Mountain City	10–28–1958
Mount Pleasant	5–19–1958
Murfreesboro	8–14–1957
Nashville-Davidson County	10–28–1957
Newport	1– 7–1958
Paris	9– 4–1957
Pulaski	9–12–1958
Rogersville	1–29–1958
Sparta	4–18–1958
Sweetwater	9–23–1958
Trenton	11– 5–1958
Tullahoma	10–13–1958
Waverly	8–26–1958
Winchester	10–16–1958
Texas	
Big Springs	12–14–1957
Borger	6–27–1958
Brady	6–26–1957
Brownwood	6–21–1957
Bryan	10– 5–1957
Burkburnett	1–14–1958
Cleburne	1–17–1958
College Station	10– 5–1957
Corpus Christi	11– 1–1957
Denison	10–30–1957
Edinburg	3–14–1958
El Paso	2–13–1958
Falfurrias	2–15–1958
Galveston	6–27–1958
Gladewater	2–19–1957
Gonzales	6–21–1957
Harlingen	2–15–1958
Houston	6–13–1958
Kerrville	4–11–1957
Kilgore	2–19–1957
Kingsville	11–14–1957
Lufkin	7– 9–1958
McAllen	3–14–1958
Midland	12–14–1957
Mineral Wells	6–21–1957
New Braunfels	1–31–1957
Odessa	12–14–1957
Port Arthur	10–23–1957
San Angelo	8– 8–1957
San Antonio	4– 1–1957
San Benito	2–12–1958
Sherman	10–31–1957
Texarkana	12–10–1957
Tyler	3– 5–1957

Communities awarded milk sanitation ratings of 90 percent or more, 1957–58—Continued

100 PERCENT OF MARKET MILK PASTEURIZED—Continued

Community	Date of rating
Texas—Continued	
Vernon	6–21–1957
Wichita Falls	1–25–1958
Utah	
Logan	5–22–1958
Ogden	10–30–1957
Salt Lake City	5– 6–1958
Utah County	11–29–1957
Virginia	
Abingdon	11– 7–1957
Alexandria	6–28–1957
Blacksburg	8– 7–1958
Bristol	11– 7–1957
Virginia—Continued	
Christiansburg	8– 7–1958
Franklin	6– 7–1957
Norfolk	6– 5–1958
Portsmouth	3– 7–1957
Pulaski	8– 7–1958
Radford	8– 7–1958
Richmond	4–18–1958
Roanoke	7– 3–1958
Staunton	4– 4–1958
Suffolk	6– 6–1957
Waynesboro	12– 5–1957
Washington	
Spokane	10–29–1958
Whitman County	10–17–1958
Wisconsin	
Appleton	1–10–1957
Beaver Dam	2– 6–1957
Beloit	1–23–1958
Eau Claire	2– 7–1957
Green Bay	10–11–1957
Kenosha	7– 5–1957
La Crosse	1–29–1957
Madison	11–29–1957
Manitowoc	4–12–1957
Milwaukee	8–28–1957
Oshkosh	7– 9–1958
Ripon	2– 6–1957
Sheboygan	7–26–1957
Waupun	2– 6–1957

BOTH RAW AND PASTEURIZED MARKET MILK

Community and percent of milk pasteurized	Date of rating
Georgia	
Americus, 94.9	8–25–1958
Cedartown, 96.9	8–31–1957
Fitzgerald, 97.9	4–11–1957
Gainesville, 95.6	9–19–1958
Rome, 99.1	10–16–1957
Thomasville, 96.3	6–24–1958
Washington, 99.8	3– 1–1957
Winder, 99	3– 7–1957
Idaho	
Ada County, 96	1–11–1957
Kentucky	
Madisonville, 99	1–25–1957
Somerset and Pulaski County, 96	8–29–1958
Mississippi	
Biloxi, 99	3–28–1958
Gulfport, 99	3–27–1958
Missouri	
Joplin, 91.4	2– 5–1958
North Carolina	
Buncombe County, 98.7	4– 1–1958
Cleveland County, 91.8	9–11–1958
Gaston County, 97.9	7–19–1957
Robeson County, 98	3–11–1958
Wake County, 99.9	1–27–1958
Wilkes County, 99.48	5– 8–1958
Tennessee	
Harriman, 95	4– 2–1958
Kingston, 96.5	4– 2–1958
Texas	
Abilene, 90	10–10–1957
Amarillo, 99.7	8–13–1957
Austin, 99.4	1–28–1957
Brenham, 95.5	7–11–1958
Brownsville, 98.7	2–12–1958
Texas—Continued	
Fort Worth, 99.98	6–14–1957
Longview, 99	2–20–1957
Marshall, 98	1– 4–1957
Palestine, 99.2	10– 2–1957
Paris, 99	12– 5–1957
Virginia	
Charlottesville, 99.6	9–27–1957
Washington	
Benton and Franklin Counties, 99.7	9–25–1958
Seattle-King County, 99.7	4– 9–1957
West Virginia	
Kanawha County, 99.3	8–29–1958
Monongalia County, 97.8	8– 9–1957

NOTE: In these commmunities the pasteurized market milk shows a 90 percent or more compliance with the grade A pasteurized milk requirements, and the raw market milk shows a 90 percent or more compliance with the grade A raw milk requirements, of the milk ordinance suggested by the United States Public Health Service.

Notice particularly the percentage of the milk pasteurized in the various communities listed. This percentage is an important factor to consider in estimating the safety of a city's milk supply. All milk should be pasteurized, whether commercially or at home, before it is consumed.

publications

The Recognition of Lead Poisoning in the Child. *PHS Publication No. 620; 1958; 8 pages; 10 cents.*

A clinical description of lead poisoning in children is presented in this pamphlet written for the practicing physician. Emphasizing the imperativeness of early diagnosis, it discusses incidence, etiology, symptoms, laboratory confirmation, and treatment.

A short bibliography is included.

Vital Statistics of the United States, 1956. Volume I. *NOVS Publication; 378 pages; $4.*

Similar in coverage to the 1955 report, this volume carries introductory material; all statistics for Alaska, Hawaii, Puerto Rico, and the Virgin Islands (U.S.); and marriage, divorce, natality, fetal mortality, and infant mortality statistics for the United States and each State.

The introduction, which includes 73 tables, discusses sources of vital data, history of vital registration, classification and interpretation of vital data, life tables, and analysis of the mortality statistics already published in volume II.

Recommended Dietary Allowances. *NAS–NRC Publication No. 598; 1958; 36 pages; $1.*

On the basis of the best current scientific evidence, the Food and Nutrition Board recommends levels of nutrient intake considered most likely to provide maintenance of good nutrition for healthy persons in the United States. The allowances are obtainable from multiple combinations of dietary patterns.

Recommendations are made for calories, protein, calcium, iron, vitamin A, thiamine, riboflavin, niacin, ascorbic acid, and vitamin D. Also considered are other nutrients for which human requirements are not quantitatively established, but which are likely to be included in the dietary patterns.

Copies may be purchased from the Publications Office, National Academy of Sciences-National Research Council, 2101 Constitution Avenue, N.W., Washington 25, D.C.

Tuberculosis Chart Series, 1958 Revision. *PHS Publication No. 639; 1958; 44 pages; 35 cents.*

A comprehensive presentation of the statistical aspects of tuberculosis in the United States, this revision combines some of the related topics in the 1957 edition and brings the material up to date.

Discussion of the usefulness of BCG and selected information from special studies are also included.

Organization and Staffing for Full-Time Local Health Services, December 31, 1956. *PHS Publication No. 634; 1958; by Clifford H. Greve and Josephine R. Campbell; 52 pages; 35 cents.*

The organization and staffing of 1,425 full-time local health units are analyzed.

Tables and charts show extent of coverage of the Nation by full-time local health organizations, selected characteristics of organized areas, financial capacity of those areas and their expenditures for public health, and public health personnel employed by official health agencies and by other official agencies.

The Industrial Environment: Its Evaluation and Control. Syllabus for short courses for industrial hygiene engineers and chemists presented at Occupational Health Field Headquarters, Cincinnati, Ohio. *PHS Publication No. 614; 1958; 364 pages; $2.75.*

Lecture outlines, extensive reference lists, and laboratory exercises have been assembled to provide guidance to engineers and chemists new to the field of occupational health and to furnish a review of basic procedures and techniques for experienced workers. The material has been developed in short courses presented by the Public Health Service.

The syllabus deals primarily with fundamental principles and methods used in the evaluation and control of the working environment, with emphasis on sampling and analysis and engineering control measures. Inplant air contaminants, radiation, noise, illumination, and ventilation are among the major topics. No material is included on clinical, toxicological, or physiological aspects of occupational health hazards.

Complimentary copies are restricted to students participating in the courses, but sale copies are available.

Sampling the Air. How air pollution is measured and studied. *PHS Publication No. 642; 1958; 5 pages; 5 cents.* Defines air pollution and describes its obvious effects. Sketches background and growth of national air sampling network. Outlines sampling procedures and resultant observations.

The Air We Live In. The health effects of air pollution. *PHS Publication No. 640; 1958; 7 pages; single copies, 10 cents, $5 per 100.* Warns against polluted air. Describes effects as nuisance and health menace, recalls episodes of mass illness and fatalities, and discusses research.

This section carries announcements of new publications prepared by the Public Health Service and of selected publications prepared with Federal support.

Unless otherwise indicated, publications for which prices are quoted are for sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. Orders should be accompanied by cash, check, or money order and should fully identify the publication. Public Health Service publications which do not carry price quotations, as well as single sample copies of those for which prices are shown, can be obtained without charge from the Public Inquiries Branch, Office of Information, Public Health Service, Washington 25, D. C.

The Public Health Service does not supply publications other than its own.

ECHOES from Public Health Reports

An Experimental Study of the Relation of Hydrogen Ion Concentrations to the Formation of Floc in Alum Solutions.

By Emery J. Theriault, Assistant Chemist, and W. Mansfield Clark, Chief of Division of Chemistry, Hygienic Laboratory, United States Public Health Service.

In approaching a scientific analysis of the art of water clarification it seems to us essential to distinguish the several aspects of the subject. These are so integrated in actual plant operation that it is difficult to perceive the true importance of each of the several factors which have to be mastered by the operator under every exigency. The isolation of phenomena, and their exact quantitative evaluation, will alone permit a true appraisal of any factor in relation to the process as a whole.

We have limited our attention to certain laboratory experiments which clarify one distinct aspect of the alum process. Our data doubtless lack the scope desirable for general practical application, but they indicate that, unless factors still to be investigated have an unexpected influence, maximum precipitation of added aluminium will occur within definite and narrow limits of hydrogen ion concentration.

It is well recognized that a precipitate is not formed from alum when the final solution is either too "acid" or too "alkaline." Hitherto the essential degree of "acidity" or "alkalinity" has been sought in the *quantity* of acid or alkali determined by one or another analytical method. More recently there has been a growing appreciation of the fact that the waterworks operator is dealing with reversible reactions, that his task is to control equilibria, and that all too methods of the analyst, devised originall ses, upset an established equilibrium to yi ious value to the case at hand.

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Emery J. Theriault collaborated with W. Mansfield Clark in showing the relation of hydrogen ion concentrations to the formation of floc in alum solutions, a basic contribution to further studies.